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No. 974

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PLANNING AND PLAN IMPLEMENTATION

GARBUZOV OUTLINES FINANCIAL GOALS OF 11TH FIVE-YEAR PLAN

Moscow FINANSY SSSR in Russian No 4, Apr 81 pp 3-16

[Article by V. F. Garbuzov, USSR Minister of Finances: "Basic Directions in the Development of the Socialist Economy and Finances in the 11th Five-Year Plan"]

[Text] All Soviet people are presently living for the ideas and plans approved by the 26th CPSU Congress. The party congress has become an event of enormous world historical significance. It has summed up the results of the diverse activities carried out by the party and the people during the past period, it outlined the tasks of the new stage and was an important turning point in the struggle for the triumph of the communist ideals of mankind.

The Accountability Report of the CPSU Central Committee given at the congress by the General Secretary of the CPSU Central Committee, Comrade L. I. Brezhnev, was a new outstanding program document of the party, a document of creative Marxism-Leninism. The theoretical conclusions and generalizations drawn by Comrade L. I. Brezhnev represent a new, major contribution to the theory and practice of scientific communism. They clearly manifested the party's wisdom, its unswerving loyalty to the principles of Marxism-Leninism, the succession of the general course consistently aimed at strengthening the economic and defense might of our nation, the rise in the prosperity of the people and the preservation and strengthening of peace throughout the world. The Chairman of the USSR Council of Ministers, N. A. Tikhonov, at the congress gave a report on "Basic Directions in the Economic and Social Development of the USSR for 1981-1985 and for the Period Up to 1990." The 26th CPSU Congress, in relying on a profound and thorough analysis of the fundamental economic problems, set for the 1980's the strategic goals to ensure a further on-going progress of our society along the path of communist construction and for strengthening and developing the material and spiritual forces of the nation. These goals of the party arm the Soviet people with a full-scale, scientifically based program for further creative work and with a clear understanding of the tasks in all areas of economic and cultural life.

The congress decisions have been greeted by the Soviet people with an enormous political upsurge, with great inspiration and ardent approval. They fully and completely approve the provisions and tasks set forward in the Accountability Report and view the party's plans as their own vital concern. During these days the nationwide socialist competition for high production efficiency and work quality and for the ever-fuller utilization of the reserves and possibilities of the socialist economy has assumed a truly unprecedented scope. The Soviet workers by their unstinting labor express unanimous support for the party's policy and rally even more closely around its Leninist Central Committee and the Politburo of the CPSU Central Committee headed by the outstanding political and state leader, the faithful continuer of the great cause of Lenin and the ardent fighter for peace and communism, Comrade L. I. Brezhnev.

The past years have affirmed the correctness, exceptional fruitfulness and enormous vital strength of the political course elaborated by the party at the present stage. "In assessing the distance traveled," emphasized Comrade L. I. Brezhnev, "it can be firmly said that the 25th Congress correctly outlined the basic trends and directions in social development. The Leninist general line of the party has been steadfastly carried out; the tasks posed at the previous congress have generally been carried out successfully."

During the past period the Soviet national economy has developed dynamically. There has been a rise in the scale of social production and the rate of scientific and technical progress in all the sectors, high absolute increases in production have been obtained, the material and cultural standard of living of the people has risen and the defense capability of the Soviet state has been strengthened. Our nation has moved substantially forward in all areas of creating the material and technical base of communism. One of the most vivid general indicators of the successes in economic development has been the achieved growth of national income which the state has used for evermore fully satisfying the social needs of the workers and for broadening the sphere of material production. Over the past 5 years, national income used for consumption and accumulation rose by 400 billion rubles in comparison with the Ninth Five-Year Plan. Four-fifths of these resources went directly into consumption by the population and into sociocultural and housing construction. As a whole during the 1970's, national income increased by more than 1.5-fold. Each percent of its growth has become more significant as is seen from the following data.

Significance of 1 Percent of National Income Increase

	(billion rubles)
Seventh Five Year Plan (1961-1965)	1.5
Eighth Five-Year Plan (1966-1970)	2.0
Ninth Five-Year Plan (1971-1975)	2.8
Tenth Five-Year Plan (1976-1980)	3.6

The steady growth rates of our economy have told favorably on the development of socialist finances as well. The role of the financial system has been strengthened in shaping a rational structure of social production, in improving national economic proportions, raising the economic soundness and balance of the plans and in the more efficient use of the labor, material and monetary resources of society.

In the Ninth and Tenth five-year plans, the USSR State Budget each year was fulfilled successfully, with an excess of income over expenditures. Its ties with the national economy were broadened. The national budget system which brings together around 51,000 budgets has had a beneficial influence on mobilizing monetary accumulation in the national economy chiefly in the form of profits and the turnover tax and on more fully utilizing the internal economic reserves for increasing state income and for savings in expenditures. Through the budget the state has carried out the planned distribution and redistribution of national income and accumulation between the production and nonproduction spheres, the sectors of the national economy, the republics and economic regions of the nation. With the aid of the budget monetary resources have been concentrated in the most important areas of social development. The following data show the increased role of the budget in socialist reproduction:

	USSR State Budget, billion rubles	Share of Budget in Total Volume of State Financial Resources, %
Ninth Five-Year Plan (1971-1975)	949	65.0
Tenth Five-Year Plan (1976-1980)	1,312	65.9

In 1971-1980, a total of 2.3 trillion rubles of income, or 65.5 percent of all the nation's financial resources, was mobilized into the budget. As a result prompt financing was provided for all the measures envisaged by the five-year plans as well as the additional measures approved by the CPSU Central Committee and the USSR Council of Ministers in the course of carrying out the five-year plans. Some 2.2 trillion rubles were spent on national economic development from internal sources of the enterprises, from bank credit and budget funds. Fifty percent of these expenditures was financed directly out of the state budget. The allocating of such significant resources for the sphere of material production contributed to a further strengthening of the material and technical base of the leading economic sectors: industry, agriculture, transportation and capital construction. The growth of the national economy made it possible to implement a major social program. In the 1970's the state allocated 32 billion rubles annually for increasing wages, pensions, assistance and other statewide social measures. Real per capita income increased by 46 percent over the 10 years. By the end of the past period, around one-half of the population had an income of over 100 rubles per month per family member, while 10 years ago only 18 percent of the population had such an income.

The outstanding successes achieved by the Soviet people under the leadership of the Communist Party in economic and cultural construction have created a firm basis for further steady progress. Our nation has entered a new decade in a great upsurge, with immeasurably increased economic and scientific-technical potential, gigantic productive forces and a firm financial base. The party channels everything that the socialist economy possesses into implementing the new grandiose plans of communist construction.

The decisions of the 26th CPSU Congress are permeated from beginning to end by a Leninist concern for the well-being of the Soviet man. They provide new convincing confirmation that the party has always and does put the interests of the workers in the forefront. As the congress pointed out, in the 1980's the Communist Party will consistently continue to implement its economic strategy, the highest goal of which is a continuous rise in the material and cultural standard of living of the people and the creation of better conditions for the all-round development of the individual on a basis of a further rise in the efficiency of all social production, an increase in labor productivity and a growth of social and labor activeness by the Soviet people.

A strengthening of the social focus of all social development is a vivid distinguishing feature in the new stage of communist construction. This is expressed in the elaboration of the specific food program, in ensuring a fundamentally important shift in the production of consumer goods, in extensive housing and cultural-service construction and in the planned carrying out of the entire full social program of the coming decade.

The party's economic strategy is embodied in the plans of creative work for the 11th Five-Year Plan. These plans are impressive in terms of their scope, profoundness and scale of accomplishment. In 1981-1985 the growth of national income will be 18-20 percent and as a total for the 5 years will exceed 400 billion rubles. The volume of industrial production will increase by 1.3-fold and will reach 800 billion rubles in 1985. The value of the nation's fixed capital by the end of 1985 will rise by 500 billion rubles and will reach 2.3 trillion rubles.

Behind these figures lie a strengthening of our nation's economic and defense might and a rise in the standard of living of the workers. There will also be a further continuous increase in the production potential of the national economy and the development and strengthening of the basic sectors of industry, transportation, capital construction and the other economic sectors.

The realization of the quotas and measures of the 11th Five-Year Plan requires major investments into expanded socialist reproduction and great material and monetary means to increase the personal and public consumption funds. The financial program of the five-year plan has been set at the enormous amount of over 2.4 trillion rubles. For comparison we might merely point out that the financial resources of the new five-year plan in terms of their volume comprised as much as was mobilized during the Fourth, Fifth, Sixth, Seventh and Eighth five-year plans taken together.

The USSR Ministry of Finances, in being guided by the decisions of the 26th CPSU Congress, is working out measures to ensure the complete and prompt mobilization of the necessary funds to finance the national socioeconomic development envisaged by the congress. The questions of continuously implementing the full social program of the party were posed in the forefront. The 26th CPSU Congress envisaged a significant increase in the scale of this program. It encompasses all aspects of the life of the Soviet people.

In 1981-1985, there are plans to implement measures to further increase wages in a number of the national economic sectors and regions of the nation. Average monthly wages for employees over the 5 years will rise by 13-16 percent, while the income of kolkhoz members from the collectivized sector will increase by 20-22 percent. There are plans to begin carrying out an important social measure, a gradual rise in the minimum wage up to 80 rubles a month as well as in the wages and salaries of employees. Measures have been provided to increase state aid to families with children and to young women. Working and domestic conditions will be improved for employed women and pension and other forms of social security will be increased for employees, kolkhoz workers, participants of the Great Patriotic War and families of deceased military personnel. These measures involve approximately 50 million persons. The state expenditures related to carrying out the new centralized measures in increasing the prosperity of the people in terms of 1985 will be over 16 billion rubles.

In implementing the key ideas of the 26th CPSU Congress, an enormous role should be played by the accelerated development of the production sphere involved in satisfying the needs of the public for mass consumer goods and services.

In recent years the output of many industrial commodities has been broadened and sale to the public increased. Retail commodity turnover in 1980 reached 268.5 billion rubles and increased by 1.7-fold in comparison with 1970. At the same time the output of certain daily necessities still lags behind the demand of the population.

The Communist Party gives primary significance to ensuring planned growth for the output of consumer goods in a broad assortment and of good quality and to organizing uninterrupted trade in mass consumer goods on the spot. During the 11th Five-Year Plan, comprehensive measures will be carried out to increase the production of consumer goods, to widen their assortment and improve their quality. This will make it possible to more fully satisfy the solvent demand of the public for goods. Retail commodity turnover in state and cooperative trade during the 11th Five-Year Plan will increase by 22-25 percent. Over the 5 years 300 billion rubles more of goods will be sold to the public in comparison with the Tenth Five-Year Plan. The 26th CPSU Congress emphasized that in the coming period a line will be consistently carried out of ensuring stability for the state retail prices for the basic foodstuffs and nonfood commodities.

In the new five-year plan, an even greater role will be played by the public consumption funds. Over the 5 years, the public will receive payments and benefits from these funds totaling 650 billion rubles, or 120 billion rubles more in comparison with the Tenth Five-Year Plan. Measures have been outlined to further improve public education, culture, public health and social security. There are plans to begin operating new children's preschool institutions with 2.5 million places and to build school buildings for 4 million places. The number of students in the general education schools in 1985 will reach 41.8 million persons, of which 13.5-14 million will be studying in the extended-day schools and groups. Over the 5 years 10 million specialists with a higher and specialized secondary education and 13 million skilled workers will be trained and sent into the national economy. The public health system will undergo further development. The number of hospital beds will rise by 265,000 and will reach 3.6 million in 1985.

In channeling significant funds into forming the public consumption funds, the state provides the public with free education and medical aid, it pays various assistance, pensions and scholarships, vacations and many other payments and benefits. All of this is a very substantial source for increasing the prosperity of the population, as the following data show: [see the next page]

Payments and Benefits from Public Consumption Funds
on a Per Capita Basis

Years	(rubles)
1970	263
1980	438
1985	497

The high rates of housing construction are a major social achievement. In the 11th Five-Year Plan there are plans to complete 530-540 million m^2 of housing, and this will make it possible for over 50 million persons to improve their housing conditions. Here the new state-owned housing is to be allocated, as a rule, according to the principle of providing a separate apartment for a family.

The congress instructions on continuing to repay the state internal loans previously placed among the population and kolkhozes must also be viewed as part of the party's social program. Since the start of repayment, 7.4 billion rubles of budget funds have been used for this purpose. In the new five-year plan, each year there will be repayment drawings for a total of 1.5 billion rubles.

The materials of the 26th CPSU Congress irrefutably show that all the main forces and resources of the nation are being channeled by the party into peaceful creation and into raising the well-being of the Soviet people.

The planned further development of the foreign economic ties of the Soviet state fully corresponds to this general line of party policy in strengthening economic cooperation and making fuller use of the opportunities of the international division of labor in expanding foreign trade on the basis of mutual advantage.

In the 11th Five-Year Plan the necessary resources and material-technical means are to be allocated ensuring a deepening of socialist economic integration and intense production and scientific-technical cooperation among the CEMA member nations. The economic ties of the socialist countries will be directed at consistently implementing the long-range specific programs and at developing cooperation through the most correct combination of the interests of each of the fraternal countries and common interests. There is also to be a further broadening of mutually advantageous trade and other economic ties with the developing countries and trade and economic relations will be carried out on an equal, business-like basis with the industrially developed capitalist states.

The political course of the 26th CPSU Congress of the greatest possible rise in the prosperity of the people has defined the chief content of the major strategic goals of the party for the 1980's in the area of economic construction and has provided a general direction for all economic organizational activities.

The Communist Party inseparably links its social program with the further development of the nation's productive forces and with the steady growth of the economy. The continuous growth of the efficiency of social production and the changeover to intensive economic development should become the material basis for new major measures in steadily raising the standard of living of the people. Increased demands on efficiency and quality of all our work comprised the core of the party's economic strategy. In a concentrated form they express the aim of fundamentally improving the use of the nation's economic potential and decisive acceleration in the rate of scientific-technical progress in the national economy and the growth of social labor productivity. In all economic and financial activities the emphasis has been put on achieving higher end results.

The consistent carrying out of the line of increasing production efficiency and product quality will make it possible to obtain more national income and monetary accumulation from each ruble of material and labor expenditures in the economic sectors and will raise the return on state investments. "The intensification of the economy," pointed out Comrade L. I. Brezhnev, "and the rise in its efficiency, if one were to transpose this formula into the language of practical affairs, consists primarily in having the production results grow more quickly than the expenditures on it and in obtaining more with involving comparatively fewer resources in production."

The designated plans of industrial development are assuming enormous socioeconomic and political significance. The 26th CPSU Congress set as its most important tasks the fuller satisfaction of the demands of the national economy for production assets and consumer goods for the public, the intensification of production and a rise in product quality on a basis of the greatest possible use of the achievements of scientific and technical progress. Carrying out these tasks will be of decisive significance for increasing the efficiency of the entire national economy.

In the state financial plan, approximately 800 billion rubles have been allocated in the 11th Five-Year Plan for industrial development. Using these funds there are plans to carry out a significant amount of work in expanding and renovating fixed production capital and ensuring stable, balanced growth of heavy industry. The industry of the "A" group has been and remains the foundation of the socialist economy and the basis for strengthening the economic might of the nation and raising the prosperity of the people. During the 5 years, the production of the means of production will rise by 26-28 percent. There are plans to intensify the concentration of resources for further improving the production structure and for bettering the internal industrial proportions. The development of the fuel and energy sectors of industry, metallurgy, machine building and chemistry has been put under the special supervision of the party and the state.

The party congress pointed to the exceptionally important significance of accelerated development for the industrial sectors of the "B" group and the greatest possible strengthening of the physical plant for producing consumer goods. The new five-year plans provide higher growth rates for the products in the sectors of the "B" group in comparison with the growth rates for the products of the sectors in the "A" group. The production of consumer goods is to rise by 27-29 percent. In this regard significant resources are being allocated for the sectors of the light, food and meat-dairy industries, fisheries and other sectors producing goods. There is also to be wider use of capacity in the heavy industry sectors for producing daily necessities.

One of the main conditions for increasing efficiency and intensifying social production is on-going scientific and technical progress throughout the national economy. This is of particular significance for industry. The congress pointed to the necessity of significantly increasing the scale of developing and introducing into production new highly efficient and economic equipment which would ensure a rise in labor productivity, a reduction in material and energy intensiveness and improve the quality of the produced product.

The outlined measures to further develop Soviet science should help to solve this major national economic problem. In the 11th Five-Year Plan, around 110 billion rubles have been allocated for these measures. The task has been posed of increasing the efficiency of scientific research and directing the resources at solving key national economic problems. It is essential to eliminate the parallelism and duplication in the work of the scientific research organizations and the scattering of resources over secondary and minor subjects as well as significantly shorten the time required to introduce the modern scientific and technical achievements into production. It is also essential to raise the responsibility of the leaders of the ministries, departments, associations and enterprises for carrying out the plans for the development and introduction of new equipment which helps to accelerate the intensification of production.

All-round scientific and technical progress is expressed in the quotas of the five-year plan to ensure high, steady growth rates for labor productivity in the national economy. This major factor of social development will determine the increased rates of the production volumes in all the sectors and will be the main source for increasing national income and monetary accumulation of the state. In 1981-1985, social labor productivity should rise by 17-20 percent and this will provide 85-90 percent of all the planned increase in national income and will produce a significant savings of labor resources. As a whole over the 5 years, as a result of increasing labor productivity in all the national economic sectors, 17 million persons should be conditionally released. In industry over 90 percent of the additional product outputs is to come from the growth of labor productivity, that is, without an increase in the number of workers. In just this current year, this will make it possible to increase the national income of the country by 8 billion rubles. Industrial profits as a whole over the 5 years will rise by 1.3-fold.

One of the most crucial problems in the present stage of social development is the ever-fuller utilization of the economic, production and scientific-technical potential of the national economy. The Communist Party views the consistent solving of this problem as one of the most important principles in its economic strategy during the coming period.

In accord with this fundamental direction in party policy, increasing the return on investment becomes a matter of primary importance. It will determine the increase in production efficiency and provide additional monetary accumulation for the state. At present, an enormous production and technical potential is concentrated in industry. The fixed and working productive capital of the industrial enterprises reaches 650 billion rubles. However it is still not used with sufficient efficiency. The enterprises of individual ministries are slow in reaching designed capacity, stoppages of equipment and mechanisms are allowed and the indicators in the shift factor do not improve. The decisions of the party congress demand a fuller utilization of productive capital from the economic leaders. This not only will increase product output at the existing enterprises but also make it possible to save the expenditures of live and embodied labor per unit of product and free significant resources which can be used to build new enterprises. It is essential to bear in mind that just a 1 percent rise in the return on investment as a whole for industry means an increase in product output of approximately 6 billion rubles with the existing capital.

The Communist Party gives particularly important significance to the questions of the greatest possible strengthening of savings in the national economy and to the rational use of the raw product, material and fuel-energy resources as well as money. During the past period there were definite achievements in the area of saving resources in the national economy. During the Tenth Five-Year Plan the reduction in the material intensiveness of social product was, according to the data of the USSR TsSU [Central Statistical Administration], 11.4 billion rubles. At the same time, at the enterprises of a number of ministries there were unproductive expenditures and losses of fuel, metal and other resources.

Characteristic for the economic program of the 26th CPSU Congress is a focus on savings and on the fuller and more rational use of all that our nation possesses. The consistent carrying out of savings and thriftiness is viewed as one of the central tasks of the 1980's. In the 11th Five-Year Plan there are plans to save 160-1[illegible]0 million tons of fuel units and this is the equivalent of saving capital investments of approximately 9-10 billion rubles for building new capacity. In machine building and metalworking there are plans to reduce the consumption rates of rolled ferrous metals by an average of 18-20 percent, for steel pipe by 10-12 percent and for rolled nonferrous metals by 9-11 percent. Other quotas of the five-year plan are also aimed at the greatest possible savings of state resources.

The party and the government have demanded from the economic leaders a thrifty and economic attitude toward each kilogram of raw products and materials, fuel, to each ruble of state assets. The implementing of economy in the national economy will make it possible to consistently carry out a policy of reducing production outlays and increasing product profitability. This will contribute to carrying out the task of increasing state monetary accumulation predominantly due to the intensive development factors of social production. The state financial plan for the 11th Five-Year Plan considers a savings of 2.2 percent from reducing the costs of industrial product or a total of over 14 billion rubles calculated for 1985.

Another important area of the five-year plan on the question of the rational utilization of material resources will be an acceleration in the turnover rate of working assets in the national economy. At present, many enterprises have acquired large stocks of commodities and materials. Considering this, the quotas of the five-year plan envisage an acceleration in the turnover rate of working assets by 2-3 days and this will make it possible to put an additional 7 billion rubles of material resources into economic circulation.

The Chairman of the USSR Council of Ministers, Comrade N. A. Tikhonov, in his report at the Party Congress drew attention to the need in the coming 5 years to achieve a fundamental improvement in the utilization of all types of state resources. He emphasized: "The designated quotas for the savings of fuel, raw products and materials, labor and financial resources should be viewed by the ministries, departments, enterprises and organizations as minimal and subject to fulfillment without fail."

The congress goals for the 1980's provide a general direction for state economic policy and outline the main content of the economic and control work to be carried out by the nation's financial bodies and banking institutions. The 26th CPSU Congress posed the task of raising the role of the financial and credit levers in intensifying production, strengthening cost accounting and strengthening the economy drive.

The continuous carrying out of the party's economic strategy and the consistent realization of the most important requirements of its policy are the guiding and directing basis of all economic and control work by the nation's financial bodies. The questions of further strengthening the financial base of the state, widening the sources of income and ensuring their stability and increasing the role of the intensive economic development factors in the forming of financial resources have been set at the center of activities for the financial system. The USSR Ministry of Finances is working out and in the near future will approve a five-year plan for economic and control work by the financial bodies in carrying out the decisions of the 26th CPSU Congress. This plan should focus the financial system on maximally strengthening the effect of finances on increasing production efficiency and its greatest possible intensification. The financial bodies have been given specific quotas for the 5-year plan to ensure the fuller elucidation of internal economic reserves and preparing proposals aimed at accelerating the growth rates of labor productivity, reducing product costs, increasing their profitability, rationally and efficiently using state assets as well as carrying out a strict economy drive in the national economy.

The constant concern of the Communist Party for the ever fuller satisfaction of the urgent needs of the Soviet people has been clearly expressed in the party's food program. The decision to work this out, as is known, was adopted by the Politburo of the CPSU Central Committee upon the initiative of Comrade L. I. Brezhnev. The 26th CPSU Congress embodied this program in complete quotas and concrete directives to the party, soviet and economic bodies. The task was set of bringing about a significant increase in agricultural product on the basis of the greatest possible development of the entire agroindustrial food complex of the nation.

The food program orients the entire national economy at the proportional and balanced growth of agriculture, the industrial sectors serving it, the food industry as well as the production related to the procurement, storage, transporting and processing of agricultural products. Its implementation requires significant funds. In the new five-year plan, almost one-third of all capital investments into the national economy will go for the development and improvement of the sectors in the agroindustrial complex. In the financial plan of the five-year plan, overall expenditures by the state for the development of the agroindustrial complex will be, according to preliminary calculations, some 600-700 billion rubles.

For the planned implementation of the party's food program there must be a major reorganization in all the work related to managing, planning and financing the agroindustrial food complex as one integrated sphere of material production. The creation in the USSR Gosplan of a special subdivision which has been entrusted with the question of coordinating the planning of development and material-technical supply for the production and processing of agricultural products must be viewed as a first step in this direction. The USSR Ministry of Finances on its behalf is working out a unified system of financial planning and financing for the sectors comprising the agroindustrial food complex. This will ensure the necessary coordination of the financial resources and provide an opportunity for an integrated examination and resolution of the problems related to increasing the effective use of the funds being channeled by the state into the development of all the abovementioned sectors.

A further rise in agriculture is the basis of the food program. The party's Leninist agrarian policy at the present stage is being carried out consistently with all tenacity and energy.

Over the past two five-year plans, more than 300 billion rubles have been invested into rural construction. The proportional amount of these investments in the total volume of state capital construction rose to 27 percent. During these years the amount of material-technical supply for agriculture more than doubled. The technical base of agricultural production was greatly reinforced. The use of chemistry, full mechanization and the industrialization of crop and livestock raising were strengthened. Reclamation work was carried out widely. The intensification of agriculture ensured its high stability. In the 1970's, the volume of agricultural production calculated on a per-hectare basis rose by 1.3-fold. In the Tenth Five-Year Plan, regardless of the bad weather conditions, the average annual grain harvest for the first time exceeded 205 million tons. In accord with the decisions of the March (1965) and July (1978) plenums of the CPSU Central Committee, during all the intervening years economic incentives for the rural economy were carried out on a qualitatively new basis and this ensured high growth rates for the prosperity of the rural workers. The total gain of the kolkhozes and sovkhozes from the socioeconomic measures carried out since 1965 has been over 240 billion rubles and this made it possible for them to channel an additional more than 142 billion rubles into the consumption fund. The wages of agricultural workers during this time increased by 2-2.5-fold.

The party's course of the greatest possible rise in agriculture has proven fully effective in the past years. It is unanimously supported and approved by all the Soviet people. As a result of the measures carried out, agricultural production has become a major national economic sector with a strong material, technical and financial base. This course remains a major strategic direction for party policy during the entire subsequent period.

In accord with the Decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Economic Incentives for the Production and Procurement of Agricultural Products" as of 1 January 1981, a new procedure has been in effect for economic incentives for the development of agricultural production. The kolkhozes and sovkhozes will be paid supplements amounting to 50 percent of the purchasing prices for selling products above the achieved level for the previous 5 years. In this regard, during the current year alone an additional 4 billion rubles have been allocated from the budget. The overall state expenditures for these purposes considering the increase in the product production volumes will be around 30 billion rubles in the 11th Five-Year Plan. In the 1980's, energetic measures will be continued to strengthen material-technical supply for the kolkhozes and sovkhozes and to further develop cultural and service construction in rural localities. In the future there are plans to allocate major financial and material resources for agricultural development and to continue the planned conversion of the economy of the kolkhozes and sovkhozes to an industrial base. The volume of capital investments into agriculture during the current five-year plan will be around 200 billion rubles.

The production potential of the countryside will grow with every passing year and the party demands that this be used more effectively and that a maximum return be obtained from those assets which go into agricultural development. This, as Comrade L. I. Brezhnev pointed out, is a distinguishing feature of agrarian policy in the 1980's. The center of gravity is now to be shifted to the return on capital investments, to the growth of agricultural productivity and to deepening and improving its ties with all the sectors of the agroindustrial complex.

The development of social production, the strengthening of its intensification and the carrying out of major socioeconomic tasks at the present stage depend largely upon the efficiency of capital construction.

Our nation is making significant capital investments into all the economic sectors as well as sociocultural and housing construction. This has made it possible to increase the economic potential of the national economy and implement a broad program of social measures. During the Tenth Five-Year Plan, the volume of capital investments, in comparison with the previous 5 years, increased by 29 percent. More than 1,200 major industrial enterprises were built and put into operation. A total area of over 530 million m^2 of housing was put into use and this made it possible to improve housing conditions for more than 50 million persons. During the past 10 years, fixed capital valued at over 1 trillion rubles has been completed for the entire national economy.

At the same time, the efficiency of capital construction is still insufficient. The main reason for this is that here, as in the other sectors of the national economy, they have still not fully surmounted the force of inertia, tradition and habit which developed in that period when not so much the qualitative as the quantitative aspect of the matter was in the forefront.

In 1980, due to the measures adopted by the CPSU Central Committee and the USSR Council of Ministers, it has been possible to halt the rise in incomplete construction. However, its overall amounts continue to remain large. In the Tenth Five-Year Plan, many ministries and departments did not eliminate the scattering of capital investments over a large number of projects. The construction times of the projects often exceeded the standards for construction time by 1.5-2-fold. At present, significant production potential does not participate in the nation's economic circulation due to the construction of enterprises and new capacity which has not been finished at the designated times. The 26th CPSU Congress posed the task of bringing about a fundamental improvement in construction and raising the effectiveness of the capital investments. During the 11th Five-Year Plan, the major forces of the contracting organizations as well as significant material-technical resources and money are to go for capital construction in all the national economic sectors. The total volume of capital investments in 1981-1985 has been planned at 711-730 billion rubles. These funds are to be used to provide a significant increase in fixed capital in power production, metallurgy, machine building, chemistry, in the light and food industries, in agriculture and in transportation. With an overall growth rate of 12-15 percent for construction during the 5 years, capital investments for the construction of projects of the fuel and energy complex, ferrous and nonferrous metallurgy, machine building, the sectors of the "B" group of industry and rail transport will rise by 1.3-1.5-fold. Housing and cultural-service construction will be carried out widely.

In being guided by the goals of the congress and the instructions of Comrade L. I. Brezhnev, the ministries, departments, the Union republic councils of ministers and the local authorities should wage a decisive struggle against the scattering of capital investments and strengthen in every possible way the concentration of resources allocated for capital construction on the major production areas and nearly completed projects, shorten the time for the building of new projects and ensure prompt putting of production capacity into operation. This will make it possible to more quickly incorporate new capacity into the nation's existing production complex and will actually increase the opportunities to raise the production of material goods and increase national income and accumulation.

The party congress posed the task of consistently carrying out a policy of restricting the number of projects simultaneously under construction and by 1983 to bring the volume of incomplete construction down to the normal level. In this regard, of particular significance is the carrying out of the quotas to raise capital investment effectiveness during the first year of the five-year plan. The plan and budget of the current year envisage that 14.9 billion rubles will be taken from the above-norm incomplete construction of fixed capital. There are also plans to mobilize 2.7 billion rubles from the above-norm stocks of uninstalled equipment existing at the construction sites.

In the 11th Five-Year Plan, measures have been set to further improve the structure of state capital investments with the aim of raising their effectiveness. The predominant development should be in the area of the technical reequipping and reconstruction of operating enterprises. Correspondingly there must be a limitation on new construction. This will make it possible to more efficiently carry out the tasks of increasing the output of new products and obtaining more significant end national economic results. The money allocated for the reconstruction and technical reequipping of enterprises will be repaid as an average 3-fold faster than in creating analogous production capacity from new construction. The congress instructed the USSR Gosplan, the ministries, departments and the Union republic councils of ministers to carefully examine these questions in working out the quotas of the five-year plan.

The increased scale of social production, the broadening and complicating of economic ties at the present stage necessitate a constant improvement in national economic leadership. This, as was pointed out at the congress, is the core of all party and state activities. The foundation for solving the problems of national socioeconomic development is laid precisely in the economic area.

During the past years, in accord with the party and government decisions, a number of measures has been carried out to improve the organizational structure of management and this has produced definite positive results. The industrial ministries have introduced general management schemes on the basis of two- and three-tier management systems and the creation of economic associations. The concentration and specialization of production have been strengthened. Over 4,000 production and scientific-production associations have been organized and these are responsible for approximately one-half of all the industrial production of the nation. In agriculture, work has been started on organizing state-cooperative, interkolkhoz and kolkhoz-sovkhoz associations and agroindustrial complexes for the production, processing and delivery of agricultural products. Measures are being carried out to improve management in a number of other sectors. In the Tenth Five-Year Plan the savings from the reduction of management expenditures was 5.3 billion rubles for the national economy as a whole. This money went to the budget and was used for financing economic development. As a result of the measures carried out, the labor of 1.5 million management workers was hypothetically saved.

The party congress planned further measures to improve and reduce the cost of the management personnel. For example, there is to be a major improvement in the organizational structure of management for construction, where at present they have not eliminated the excessive number of management levels and there is a large number of small organizations. This reduces work efficiency in the sector as a whole. Other measures will also be carried out to improve and reduce the cost of the management personnel. During the current year the savings from implementing these measures will be 1.1 billion rubles. At present the USSR Ministry of Finances is drawing up proposals to further reduce state expenditures on the support of management personnel.

The congress decisions oblige the ministries, the departments and the leaders of enterprises and organizations to constantly improve and reduce the cost of management personnel, to improve the style and methods of work on a basis of Leninist management standards and ensure precise executive discipline and great responsibility for the results and quality of work in each production area. The party challenges all the leaders and organizers of production to raise exactingness, to learn to work more efficiently and manage more effectively.

The Communist Party gives primary significance to strengthening the economic methods of management and to raising the management level in all units of the economy. A further improvement in management and the economic mechanism is viewed as an essential condition for the growth of social production and for increasing its efficiency. All managerial and planning activities are aimed at achieving better end national economic results, widely introducing scientific-technical achievements and advanced experience into the national economy and making more effective use of all the material, labor and financial resources of the state.

In the coming period, the questions of the practical implementation of the comprehensive reorganization of the economic mechanism outlined by the Decree of the CPSU Central Committee and the USSR Council of Ministers "On Improving Planning and Strengthening the Effect of the Economic Mechanism on Raising Production Efficiency and Work Quality" will be in the forefront. The consistent implementation of the measures outlined in the designated decree is viewed by the party and government as a major economic and political task.

The party, soviet, planning and economic bodies have carried out extensive preparatory work on the specific areas for improving the economic mechanism. During the current year the enterprises in industry and other sectors have started to convert to the new conditions of production and financial activities. The party congress drew the attention of the ministries and departments and the economic leaders to the necessity of fully implementing the elaborated measures in order to create the best conditions for a further rise in the efficiency and intensification of all social production.

In the system of improving the economic mechanism, important significance has been given to further development of financial relations in the national economy. This work is aimed at raising the effect of finances on mobilizing reserves and encouraging economic activities for the more effective and economic use of state funds and for achieving better end results. For carrying out these important tasks there are plans to improve the financial levers and to strengthen the cost accounting principles for material incentives in production.

The greater impact of finances on increasing production efficiency and work quality is also directly linked to further improving financial control in the nation. In being guided by the instructions of the 26th CPSU Congress, the USSR Ministry of Finances has directed the work of the control and auditing personnel at ensuring a rise in the efficiency of economic and financial activities, strengthening the economy drive in the national economy, preventing violations and abuses in the expenditure of state funds and ensuring the safekeeping of socialist property.

For further increasing the effectiveness of financial control, we are implementing measures to strengthen the coordination of economic and control work carried out by the financial bodies, the banking institutions and the people's control bodies. At the same time, intradepartmental control should also be raised to a new qualitative level. We must close off all channels of losses, eliminate mismanagement and excesses and more decisively disclose and utilize the great reserves and opportunities existing in the national economy.

The Soviet people have already begun to carry out the grandiose program of the new five-year plan. Throughout the nation a mass patriotic movement has started to fulfill and overfulfill the quotas in the first year of the 11th Five-Year Plan. This shows the firm determination of the Soviet people to mark the year of the party congress by shock labor and to embody the plans of the historic 26th CPSU Congress in life.

The workers of the financial bodies are working appropriately to carry out the party's socioeconomic program. Having actively joined the nationwide socialist competition in honor of the 26th CPSU Congress, they have assumed additional increased socialist obligations and are successfully carrying them out. It is important to reinforce what has been achieved, not to lessen attention to the questions of disclosing and effectively using the reserves and to successfully fulfill and overfulfill the 1981 USSR State Budget and the socialist obligations of the financial bodies.

"There is much to be done. The tasks to be carried out are great and complicated ones. But we will carry them out, we will without fail." These words spoken by the General Secretary of the CPSU Central Committee, Comrade L. I. Brezhnev, at the session of the 26th CPSU Congress were received with exhilaration by all Soviet people as a party appeal for new labor feats and great accomplishments for the glory of our motherland which is advancing steadily toward communism.

The workers of the financial system, like all the Soviet people, will fight steadily to carry out the new magnificent plans of communist construction in our nation and will devote all their force, knowledge and experience to successfully carrying out the tasks posed by the 26th Party Congress.

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INVESTMENT, PRICES, BUDGET AND FINANCE

NET OUTPUT NORMS IN MACHINE BUILDING REDEFINED

Moscow EKONOMICHESKAYA GAZETA in Russian No 19, May 81 p 10

[Article by L. Rozenova, member of USSR State Committee for Prices: "Normative Net Production"]

[Text] The complex of measures for improving the economic mechanism contains, as we know, the employment of a new indicator in planning--normative net production (NNP). The use of the indicator is preceded by work on the creation of net output norms for the entire product mix of produced items. The norms are established by price formation organs simultaneously with wholesale prices. As of 1 January 1982, 33 ministries, including all the machine-building industries, must go over to the use of the indicator of normative net production in the planning of industrial production. At four ministries--the USSR Ministry of Power and Electrification, the Ministry of Petroleum Industry, the Ministry of Gas Industry and the USSR Ministry of Nonferrous Metallurgy--this indicator will be used for the time being only at enterprises of the processing industry.

As of now, net output norms have already been confirmed for all products of machine building. The USSR State Committee for Prices has approved more than 177,000 norms for machinery, equipment and instruments and more than 30,000 for tools. These norms are included in the new price handbooks of wholesale prices which are to be introduced as of 1 January 1982. Development of norms has been completed for products of the light and food industry, for construction materials and products of the timber and pulp and paper industry, products for cultural, consumer and household use and other products of sectors going over to the new indicator in 1982.

Price and the Norm

The net output norm constitutes a part of the wholesale price of an item, including pay, deductions for social insurance and profit. The NNP includes the basic and supplementary pay of production workers with deductions for social insurance in the calculation of the production cost of an item, the pay of the rest of industrial-production personnel for maintenance and management of production per product unit and normative profit also per product unit.

Net output norms, like wholesale prices, are computed on the basis of individual calculations and progressive norms. Norms and prices are consequently based on one economic basis. Wholesale prices for products of production-technical function are established, as we know, on the basis of economically valid outlays on production with account being taken of the technical level, quality and economic result of production and use of products. Price elements are economically valid expenditures, normative profit and a part of the economic result in the form of incentive increases.

Sectorial net output norms, having a computing basis with price, take into account not individual labor outlays of a specific enterprise but rather socially necessary outlays for production output adopted in the formation of wholesale prices and providing the biggest economic results from the production and use of products.

Wages of production workers in calculations of NNP and wholesale prices are determined on the basis of progressive norms of labor intensiveness. As for wages for the maintenance and management of production, they are computed with the aid of a special coefficient which is the same for all the products of a specific enterprise or the same for the sector. This coefficient characterizes the relation of the sum of the wages of the industrial-production personnel for management and maintenance of production to the wages of production workers.

The coefficient level depends on a number of factors, including, for example, the size of the design and technological services, the correlation of auxiliary to basic production workers. This coefficient is on the average 1.5 for machine building. The special features of basic production and its maintenance in individual sectors affect the size of the given coefficient. For example, at tie impregnating plants of the Ministry of Railways, the number of production workers employed in auxiliary and transporting operations--loading, unloading, warehousing, repair work, guarding of enterprises--exceeds several fold the number of production workers in the basic manufacturing process (machinists, impregnation workers). With such a correlation of number and size of wage fund of basic and auxiliary workers, the coefficient is equal to 6-7.

Accounting of Profitability

An important element of price and NNP is profit. Use in planning of the indicator of normative net production makes high demands on the basis of profit used in the formation of wholesale prices and net output norms. Consequently, in machine building, for example, there have been established for the computation of new wholesale prices and NNP sectorial norms of profitability for production cost minus the cost of use of raw and other materials, semifinished products and component parts. With such a method, the profitability of boosting the share of "alien" labor does not influence growth of profit and thereby neutralizes the interest of enterprises in putting out products with high materials intensiveness.

For computation of prices and NNP, the profitability of specific products is established with production cost minus material outlays. The profitability norm fluctuates from 40 percent (machine building for light and food industry) to 61 percent (power machine building), with the average size for machine building being 50 percent.

In a number of sectors--instrument making, machine building for light and food industry--single norms of profitability are used for all products of production and technical designation. Spare parts constitute the exclusion; for them a norm was established for stimulating their production which exceeded 1.5- to twofold the norm level of the rest of the products of the sector. For this purpose, the profitability norms boosted 1.2 to 1.5-fold were adopted for goods of cultural, consumer and domestic use.

In formation of prices and determination of NNP, one and the same profitability norm is used relating to production cost exclusive of material outlays. For this reason NNP, like prices, can perform a stimulating function. The production of spare parts and equipment for consumers will be advantageous in this connection for both the specific enterprise and the national economy as a whole.

As an average for machine building, wages in NNP comprise 60 percent and profit--40 percent. Sectorial deviations are to be explained by differences in the structure of expenditures and the special features of profit formation while taking into accountcapital requirements per ruble of output.

In machine building, the same size of profit is used for the computation of wholesale prices and norms for each product unit. For a number of other sectors, the amount of profit used in the formation of wholesale prices and of profit included in NNP cannot coincide for specific brands (models, items) of products. But for a sector as a whole, the size of profit reflected in wholesale prices and of profit included in net output norms does coincide. For example, norms of profitability in the calculation of wholesale prices for products of light industry were differentiated with consideration being given to the provision of cost accounting for each subsector. For the calculation of NNP, a single norm is used which is based on total profits for the ministry in the amount of 33 percent of the cost of processing. This provides equal profitability in the production of all products and an identical structure of normative net production for all subsectors of light industry.

Organization, Development of Norms

The preparation of the norms was organized in conformance with the "Methodological Instructions on the Procedure of Working Out and Using in Planning the Indicator of Net Production (Normative)" approved by Gosplan USSR, USSR State Committee for Prices, the USSR Ministry of Finance and the USSR State Committee for Labor and Social Problems in coordination with the USSR Central Statistical Administration. The USSR State Committee for Prices also prepared a number of instructive directions on the procedure for developing and approving NNP for products of light industry, cultural, consumer and household goods, furniture, products for export and other items. Some ministries transferred to the use of the new indicator in planning as of 1 January 1982 in agreement with the USSR State Committee for Prices and Gosplan USSR approved the sectorial methodological instructions reflecting the specific features of production output.

The development of plans of prices and NNP was concentrated at leading sectorial organizations--scientific-research or planning-design institutes and bureaus. Sectoria organizations received from production associations (enterprises) calculating materials for price plans only in the case of existence of bases for NNP plans. The parallel development of plans of prices and NNP was thereby provided for; this reduced the time of performing work and made it possible at the same time to put into operation both the new wholesale prices and NNP.

The wholesale prices and NNP were approved by one and the same price-formation organs in accordance with the rights granted them. As a result, methodological and organizational unity in working out prices and net output norms were achieved.

The net output norms approved by organs establishing prices are sectorial. NNP, as part of the wholesale price, includes average sectorial outlays of living labor used in wholesale price formation. These sectorial norms are applied to products made by enterprises of those ministries and departments where wholesale prices of pertinent price lists will be used.

At a number of ministries, particularly at the USSR Ministry of Ferrous Metallurgy, the USSR Ministry of Petroleum Refining and Petrochemical Industry and the Ministry of the Chemical Industry, verification of the indicator of normative net production is continuing. Norms in these sectors will be worked out following generalization of the results of the experiment. The conversion periods to NNP have not yet been determined at these ministries. Consequently the USSR State Committee for Prices and Gosplan USSR determined that manufacturing ministries establish intrasectorial norms for those products in sectors converted to NNP for which net output norms have not been set by price forming organs in the new price lists (for example, metallurgical, chemical and petrochemical).

The transition from experimental verification of NNP to the systematic introduction of this indicator into operational practice raises a number of new questions. In particular, the question of correcting the net output norm should conditions of cooperation change calls for a solution. In the case of change of these conditions, ministries and departments present proposals for refining existing norms to price establishing organs. For complex types of products such changes occur constantly. A check of a number of machine-building enterprises showed that outlays for the item "purchased products and semifinished products" grew 1.5-fold or more for many kinds of products compared to those included in the establishment of norms. It is therefore advisable to create a more flexible mechanism of changing norms with significant expansion of cooperation and reduction of one's own outlays of labor.

Structure of Net Output Norms for Machine Building Sectors (in percent)

Sectors	Share of NNP in wholesale price	NNP		
		total	wages	profit
Total for machine building, including:	32	100	60	40.0
Ministry of Heavy and Transport Machine Building	36	100	62.7	37.3
Min. of Power & Electrification	40	100	50.1	49.9
Min. of Agricultural Machine Building	30	100	54.7	45.3
Min. of Machine Building for Animal Husbandry & Fodder Production	28	100	54.2	45.8
Min. of Automative Industry	30	100	55.0	45.0
Min. of Construction, Road & Municipal Machine Building	25	100	63.2	36.8
Min. of Chemical & Petroleum Machine Building	37	100	60.3	39.7
Min. of Machine Building for Light & Food Industry & Household Appliances	37	100	65.5	34.5
Min. of Electrical Equipment Industry	28	100	59.2	40.8
Min. of Instrument Making, Automation Equipment & Control Systems	41	100	59.3	40.7
Min. of Machine Tool & Tool Building Industry	40	100	65.2	34.8

The experience of using the new indicator shows that an additional analysis should be made of products of equal usefulness put out by an enterprise but included in different wholesale price handbooks in which profitability norms differ significantly. Of course, products list plan fulfillment is mainly influenced by material provisions of production and the system of material incentives for adhering to commitments made in regard to deliveries; the one NNP indicator to a certain extent influences products list plan fulfillment.

The use of normative net production in planning together with other measures for improving the economic mechanism makes it possible to more reasonably plan and evaluate the operation of enterprises and associations.

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RESOURCE UTILIZATION AND SUPPLY

PROBLEMS OF OPTIMAL RESOURCE UTILIZATION EXAMINED

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[Article by Yu. V. Yaremenko, Moscow: "Problems of Utilizing Qualitatively Heterogeneous Resources"]

[Text] The decisions of the 26th CPSU Congress presuppose an increase in the attention shown to the analysis of the conditions for the intensification of production, for raising the level of balancing of the economy, and for achieving an increase in the effectiveness of resource utilization. The economic and theoretical-methodological aspects of these problems are the subject of this article.

In [1] mention was made of the interdependence among the scopes of the relatively surplus (mass) resources to be reproduced at the lower levels and the capabilities that the economy has at its disposal during the formation of a system of priorities, the concentrated use of rigidly limited (qualitative) resources to be reproduced at the upper levels of the national economy. This dependence is determined by the compensatory effect created by the mass resources. A reduction in the scopes of their compensatory effects makes it necessary to redistribute the qualitative resources and to increase the activity of their replacement role at the lower economic levels.

Large-scale shifts with relation to individual types of resources, which shifts are of importance to the national economy, are projected to the microlevel and manifest themselves in a definite directedness of the functioning of the institutional links in the economy, in the confirmation of those methods of resource utilization and forms of economic activity which to the greatest degree conform to the objective needs of the particular stage of development.

The concrete mechanism for implementing the interactions among the levels is made up of many components. What is interesting first of all is the mechanism for the adaptation of the production microstructure to the national-economic requirements of the processes of compensation and replacement. The problems that become the initial ones here are those involving the functionally significant attributes of the output that constitutes the mass resources, as well as the ascertaining of the common properties of the technological schemes that are oriented at their consumption. Simultaneously one must consider to be the object of research the attributes of the increase in the rate of the compensatory effects in the technological schemes being employed, as well as in the changes in the structure of the enterprise, branch, etc. The qualitative growth of the economy finds its expression in the successiveness of the economic processes at the microlevel, in the gradual development of such economic processes as the diversification of production, the specialization and concentration of production, and the expansion of labor mechanization.

It is important to know where, in the practical situation, one can discern the boundary between phenomena, even though they do not conform to certain normative ideas but nevertheless reflect the organic properties of the economy at the present-day stage, and those which are caused by deviations from the conditions stipulated for proportional, balanced development.

Thus, this article is devoted to the interactions among various groups of resources at the microlevel -- within the framework of the concrete economic processes. Its content can be viewed as the concretization of the general principles formulated in [1].

Forms of Implementing Priorities

The formation of a system of priorities is an objective process for the economy, in which the attainment of the basic goals of development is mediated by the qualitative growth of the utilized resources. However, that objective need is implemented in the practice of planning and administration with the aid of various types of methods that have dissimilar importance at various stages in the development of the national economy. One can presuppose -- and the accumulated experience partially confirms this -- that the methods of creating a system of priorities in the distribution of resources differ substantially, with the basic watershed in the possible differences running between the approaches that rely chiefly on the direct regulation of the resource movement and the methods that employ value mechanisms: prices, financial payments, subsidies, etc.

In our economy the principle developed historically, and is still in effect, that the dominant role belongs to the direct distribution of resources. The factor that is of determining importance is the regulation of the investment process: the establishment of a system of requirements and limitations for draft plans that pertain to various spheres of the economy; and the activation of the entire set of means that guarantee the implementation of the planning decisions that have been made. The distribution of the resources intended for capital construction and the resources that assure the further normal course of current production (the system of funding of output) is, to a certain degree, only the reflection of that hierarchy of plans that have been adopted for implementation, a reflection that reproduces the evaluation that has been made of the importance that individual subdivisions of the economy have to the national economy.

Obviously, the peculiarities of the investment backlogs for various production entities bear the imprint of the capabilities of the investment sphere, the level of development of certain branches of construction and machine-building. A change in the correlation of the priorities by means of the acceptance of new plans requires, consequently, anticipatory action in the preparation of the investment base. That means that the decisions that provide for qualitative shifts in a particular type of output must be preceded by gradual intercoordinated changes within the framework of the indicated sphere, which could create the conditions for the attainment of the necessary final results.

The direct distribution of material resources is supplemented by the indirect distribution of manpower and objects of consumption through a system of wages. Subdivisions with a high technical level of production, which play an important role in the reproduction of the limited qualitative resources, have a relatively high level of payment of labor, and this makes it possible to attract manpower with the appropriate level of proficiency. The indirect forms of distribution of consumer resources, in addition, are supplemented by the direct ones in the form of a factually different (in quality and variety of commodities) supplying of objects of consumption to the population in the cities and rural localities, small and large cities, etc. Another direct form is the different rate at which the workers in various branches are provided with housing and other benefits to be distributed by way of the social funds.

Indirect regulation, to a definite degree, is carried out by a change in the correlation of prices of materials, fuel, and energy in certain spheres of their consumption. This is an important factor that has an effect upon the volume of expenditures during the production of various articles. Prices, thus, also participate in the formation of the system of economic priorities. Obviously, one can imagine a direction in development with which the value mechanisms to a considerably greater degree mediate the interaction among the qualitatively diverse economic level than occurs in our economy at the present time. However, in this instance there must be a conformity between the qualitative rank of the output being produced, the profitability of production, the need for resources, the prices of those resources, and the purchasing capacity of the interrelated subdivisions of the economy. In order to reproduce that system of preferences and limitations which inevitably develops under conditions of unequal provision with various types of resources, the mechanism of price determination should be supplemented by a system of differentiated grants and subsidies, taxes, etc.

One factor that hinders the implementation of the principle of priorities with the aid of this kind of financial-value mechanism is the lack of conformity between the real differences in proficiency and the general-economic importance of the production activities of the workers at qualitatively different economic levels, on the one hand, and the actually possible differences in the payment of their labor, on the other. Whatever the differences in the consequences to the national economy from the individual types of labor activity, the differentiation of wages in socialist society always forms under the effect of the tasks in the social policy being carried out. When this differentiation fails to conform to the actual differences in the proficiency level of the workers and the nature of the work being executed by them, the difference in the level of prices will not reflect the actual importance that individual products have to the national economy. Another substantial factor is the fact that the distribution of the material resources on the basis of a mechanism that assures the coordination between the income derived by the enterprises and the differentiated prices for the output produced by subdivisions that pertain to different levels of the considered hierarchy of the economy unjustifiably (from the point of view of the overall tasks of the qualitative growth of production) expands the access to the limited material wealth.

Thus, one of the advantages of the direct planned distribution of output consists in the fact that the social policy, the goals of the most effective utilization of resources in the process of the qualitative growth of production, as well as the broad tasks of material support of all the subdivisions of the economy, do not contradict one another. The physical distribution of output creates a definite barrier between the sphere of production and the sphere of distribution of income. The existence of this barrier is especially important at the first stages of the structural reorganization of the national economy under conditions of considerable qualitative changes in production. As one observes the intensification of the economy and the reduction of the "qualitative distance" between individual types of production, the role of the direct distribution of output, obviously, should also decrease, and capabilities should develop for the use of financial-value mechanisms.

In the capitalist countries, where the direct distribution of resources does not exist, the conditions for the preferential development of individual branches and production entities are created by means of the redistribution of financial resources which is completely uncontrollable or which is mediated by state-monopoly regulation. The objectively necessary forms of interlevel interaction, which accompany the accelerated buildup of the production potential in the upper tiers of the qualitative hierarchy of the economy, are complicated in the capitalist countries by the interrelationships among the classes and groups of the population, which possess opposing interests, among various classes and the state, etc. Among those forms of economic life which require the mobilization of financial means at the upper levels of the economy, and, consequently, the creation of the prerequisites for satisfying the needs for qualitative resources, one must include various kinds of state-encouraged and state-supported monopolies in new branches of industry. An example of this can be provided by the position of the U. S. government with respect to monopolies in nonferrous metallurgy, in certain branches of machine-building, and in other areas. One can include in the same category the system of state purchase orders, carried out under preferential terms, which are linked with subsidies, the accelerated depreciation of equipment, etc. The opposite pole in the capitalist system of redistribution of resources among the spheres of the economy is the relatively low profit norm and the difficult conditions for the economic survivability of enterprises in the traditional branches of industry, the "self-exploitation of the producers," to use the terminology of J. Galbraith, at small-scale industrial enterprises and in agriculture.

Conditions for Interlevel Interactions of the Compensatory Type

Specifics of technology. The initial stages of structural changes are linked with active compensatory effects, as a condition for the establishment of a rigid system of priorities and the accelerated buildup of those types of resources for which the national economy feels the most vital need. The form that has developed for the accumulation of the effect that assures the mobilization of mass resources has been the orientation on those types of technology in the branches of material production which made it possible to make the maximum use of the surplus resources of manpower, and the relatively accessible types of equipment and materials, and the minimum use of scarce types of complicated equipment and highly-trained personnel. Very important peculiarities of these types of technological schemes that are oriented at the compensational effect were the following:

1. The broad use in various production operations of manual labor, chiefly in those instances when an increase in the providing of mechanical equipment would be,

to a considerable degree, accompanied by a saving of labor expenditures and would not produce a substantial saving in the output of production as compared with the effect of the mass application of manpower. Therefore the use of living labor is most widespread first of all, in those branches where the buildup of capacities, and the acceleration of the production cycle and the rates of growth in output could be achieved by an increase in the number of persons employed; secondly, in the ancillary sectors of all production entities to the extent at which the level of labor mechanization would not be linked with the technical outfitting of the basic production entity.

2. The operation of machines and machinery at the middle and lower technical level, which requires, however, relatively large expenditures of raw and other materials, fuel, and manpower at the medium or low level of proficiency. Increased expenditures of mass resources can be viewed in this instance as additional costs, which, nevertheless, are justified thanks to the capabilities of reducing the need for more complicated equipment as compared with that which is actually being used. The chief sphere, which is expanding as a result of these kinds of compensatory processes, is the processing industry, particularly machine-building, wood-processing, the building-materials industry, etc.

The macrorelationships in the national-economic makeup of the resources, and the relative surplus of mass types of them, have given rise to a definite type of technology which, in its turn, has found expression in special forms of the division of labor among the basic branches of material production.

The proportions that have developed between the processing and the raw-materials branches are the result of the specific technology used in the former branches. The fact that that technology requires large amounts of materials and labor has left its imprint on the very large structural correlations in the entire national economy. The high materials-requirement of the economy brings about an increased consumption of energy, and this, in its turn, involves the necessity of expanding the energy-intensive production of materials and subsequent energy expenditures to process them. The need for the mass shipment of raw materials, fuel, and other materials causes an increase in the volume of transportation shipments, and the interregional transportation gets the preferential development. Large transportational expenses are yet another factor for the increase in the amount of energy need in social production. The increased share of the branches that provide for the obtaining and processing of raw materials and the considerable percentage of rail shipments require large capital expenditures and the development of metal-intensive heavy machine-building.

3. The orientation toward easily accessible natural resources -- tracts of land, deposits of minerals, forests, etc. -- the existence of which makes it possible to use simplified technology and to develop, on that basis, agriculture and the extractive branches of industry by means of the maximum expansion of the work front and the involvement of new natural resources in circulation.

Principle of multipurpose utilization. One of the important prerequisites for the creation of the conditions for the maintaining of the compensatory effects is the orientation toward multipurpose technological schemes, equipment and materials, and mass occupations. Compensatory technological schemes are based on the use of multipurpose machine tools and transportation means, materials which are only slightly differentiated with respect to their consumer properties, and the use of manpower within the confines of a limited set of widespread occupations.

The broad application of technological equipment of this type in the processing industry, at the stage of mobilization of the compensatory capabilities of the economy, has the following advantages:

-- there is a narrowing of the circle of consumers of scarce complicated technology; and a reduction of its products list and its purposeful use are assured;

-- there is a relative decrease in the demand for highly-trained manpower; one sees the formation of demands for workers that make it possible rapidly to increase the number of workers with no consideration of their current level of education, the existing special-education base, etc.;

-- the production of a limited number of standard machines can be placed on the flow line with all the concomitant benefits of large-scale concentrated production;

-- there is a resolution of the problem of the mobility and the flexible use of equipment; the increase in the products list of the necessary output in excess of the number of enterprises, shops, and production sectors inevitably requires the adaptation of one and the same machine tools for the execution of various production orders; the maintenance of a high percentage of multipurpose equipment serves under these conditions as a means for the most desirable adaptation to the multipurpose nature of production which is typical of the initial period of the intensive structural changes;

-- provision is made for reliability of the functioning of the created production apparatus, thanks to the simplicity of the service and repair, and to the better replacement capabilities;

-- the surplus capacities that periodically arise as a result of the change in the makeup of the enterprises' production program are provided with an economic form of support, inasmuch as the equipment that ends up in the reserve is not scarce equipment. The reserve capacities or the relatively unloaded capacities of the repair management, ancillary production, etc., will be discussed subsequently. Here, however, it should be noted that the flow-line production of multipurpose equipment was, to a definite degree, based on the appearance of those kinds of production entities, the very purpose and method of functioning of which do not presuppose a complete or stable work load; accessible and simple technical means are the most desirable ones.

The increased expenditures of labor, materials, and other types of resources in current production, which are linked with the use of multipurpose technological schemes and equipment in various branches, have dissimilar forms of manifestation. In the processing industry, such expenditures are caused by standard operations of mechanical processing which is accompanied by considerable waste products. The introduction of multipurpose transportation means for hauling types of freight which are different in nature led to the incomplete use of the hauling capacity of those means, and to the overexpenditure of fuel. Multipurpose technology in agriculture contributed to the rather complete mechanization of labor only in individual production entities and operations, but did not eliminate the high level of expenditures of manual labor in other types of operations.

Although one of the initial points in the mass application of multipurpose technology was the low specialization of production, which was influenced by the varied needs in the first stages of industrialization, subsequently the accelerated buildup of the production of multipurpose equipment became an important factor in restraining the development of specialized production entities.

Economic isolation. The varying degree to which the enterprises, associations, main administrations, and ministries are provided with qualitative resources can be retained only if one uses specific methods for including the economic links within the system of the territorial-branch division of labor. The chief principle in the formation of production links under conditions of a system of priorities is the predominance of the single-level contacts and the reduction to the minimum of the dependence that the relatively low economic levels have upon the enterprises. Inasmuch as the establishment of the interaction among the enterprises, first of all, is subordinated to the criterion of qualitative conformity, territorial proximity can be of secondary importance as compared with the fact that individual groups of production belong to the appropriate qualitative level. In the event that, in the economic region where the enterprise at a definite level is situated, there are no capabilities for chosing suppliers on the basis of this criterion, that enterprise either establishes interrelations with enterprises which are qualitatively of the same type, but situated in another region (creating an additional load upon the interregional railroads), or provides for itself, by means of organizing small-scale, relatively ineffective production entities*. Either action involves additional expenses, which can be viewed as a special kind of compensatory expenditures that spare the economy the additional demand for qualitative resources which arises when the economic barriers between enterprises of different qualitative categories are removed.

One should differentiate the economic isolation, as an organic property of the formation of enterprises, associations, main production administrations, and ministries in a multilevel economy, from those secondary manifestations of isolation which are the consequence of the specific developmental conditions that are engendered by disproportions (for example, the striving to have individual enterprises self-sufficient, to create the material prerequisites for independence with regard to suppliers, as a guarantee of rhythmical production activity).

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* Thus, when it is necessary to maintain the qualitative differentiation of the economy, the problem of the insufficient density of the consumption of resources per unit of territory becomes more acute. The observed deconcentration of the production potential throughout the territory, which predetermines the low density of consumption of resources in individual regions and which hinders the deepening of the division of labor and the formation of cooperatives in production, actually is even stronger. In a number of instances the territorial capabilities of the consumption of resources should be evaluated on the basis of the size of the qualitatively differentiated economic groups. The scope of the production within the framework of each group is dictated by the real scope of the demand for individual products and the possible size of the enterprises that serve several consumers.

Diversification* of production. This is one of the elements of the mechanism that leads to the distribution of resources in conformity with the objectively established priorities and to the maintaining of the qualitative integrity of the economic levels; it lies, as is well known, in the production, in addition to the basic output in which the enterprise specializes, of a number of other types of output, which frequently are substantially remote from the production specialization that has developed.

The most overall reason for diversification consists in the fact that the potential suppliers of output frequently belong to a different qualitative category than the consumers of that output. Such differences can be expressed either in the fact that the output supplied from lower economic levels to the higher ones will not correspond to the necessary qualitative specifications, or (when the output is moving in the reverse direction) it will prove to possess certain excessive properties. When, within the system that has developed for the social division of labor, there are no elements of the necessary qualitative category, they are newly created. Under definite conditions this occurs in the form not of the formation of new enterprises, but, rather, of unspecialized activity that accompanies the basic production. These conditions occur, as a rule, in the event that the extent of the new demand is inadequate for organizing a new enterprise or the demand is too deconcentrated.

Additional production entities are created on a base that guarantees definite properties in the new output, in one of two forms: 1) by the consumer of the particular output, who has skilled technical personnel, access to the appropriate types of material resources, etc.; or 2) by the enterprise, which possesses the necessary rank and which is relatively close in the field of specialization to the production of the output to be assimilated. The former method is the formation of nonspecialized production entities proper; the latter is despecialization, the dismemberment of the basic type of activity. The unification of either process by the concept of diversification can be justified by the existence of general reasons for the arising of both forms of expanding the enterprise's sphere of activity.

The multispecialized nature of the machine-building and a number of other industrial enterprises was the inevitable consequence of the conditions of the first stages of the structural changes in the economy: the limited nature of the production capacities; the fact that the need for the products list for output exceeded the number of self-contained production entities; the discrete nature of the demand for individual types of output, which discrete nature was linked with the mobility of the structure of capital construction. The limited scope of production during the initial period of industrialization and the scope of the possible capital investments did not allow the simultaneous satisfying of all the existing structural needs, that is, they presupposed a definite sequence in the implementation of the production orders, a sequence that was based on the use of one and the same capacities.

The formation of the products list for the output of individual enterprises under the influence of the tendency toward its qualitative unity as a regulating principle for the division of labor intensifies the phenomena of multispecialization and despecialization.

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* By diversification one understands the total set of phenomena linked with nonspecialized production.

Costs of despecialization. The tremendous list of needs to be satisfied by means of domestic production; the deconcentration of the economic potential over the country's territory; the low density of production consumption in individual regions; and the reliance upon multipurpose equipment and technology have influenced the insufficient level of specialization of production and the existing deviations from the efficient level of its concentration.

The nature of specialization that has developed, in addition to those expenditures in basic production which are characterized by low return by multipurpose equipment and by large expenditures of materials and manpower, gave rise to a number of compensatory expenditures of a second order. We must include among them the additional costs in the area of blank production, which are linked with the small series nature of output to be produced, and the increased costs for rigging and for transportation-and-warehouse needs (caused by the complexities of shipments of articles having multiple products lists).

The shortcomings of object specialization lead to undesirable consequences for part and technological specialization. The multispecialized nature of basic production determines the choice of the most general-purpose technological solutions in blank production (forging instead of stamping, etc.). The increased expenditures of materials and labor are the result not only of the peculiarities of the final stage of processing of the articles, but also the low specialization of all the preliminary and intermediate stages in the processing of the initial raw materials into the finished output.

The level of specialization of the basic production manifests itself most deeply in the ancillary sphere of the enterprises' activity: in cutting-tool production, and in the warehouse and transportation management. The development of the latter managements, under conditions of multipurpose activity, does not have an objective basis for the creation of stable technological schemes, the mechanization of labor-intensive processes, etc. Among the compensatory costs that are influenced by the introduction of multipurpose technological processes and that assure the maintenance of an extensive and mobile products list for the output to be produced, the expenditures in the ancillary production are the greatest, since it is generally known that ancillary production is one of the basic areas in which there is broad application of manual labor.

Thus, the compensatory expenditures engendered by the economic desirability of maintaining multipurpose, multispecialized production represent a complicated set of additional expenses that encompass all stages of the technological processing, as well as additional and ancillary types of activity.

Costs of production and operation. One of the most important forms of the compensatory effect is the increased expenditures of mass resources, which expenditures are linked with the operation of equipment and which make it possible to reduce the demands on its qualitative characteristics at the stage of production and thus to save the qualitative resources. There exist several types of such compensatory expenditures:

-- [expenditures] of labor, auxiliary materials, and fuel during operation, which make it possible to simplify the initial planning decisions, and to ease the requirements pertaining to the reliability of individual assemblies and pieces of machinery;

-- [expenditures] of labor and materials in the process of current and capital repair of the equipment, which compensate for the reduction of the requirements on the quality and service life of the individual assemblies and parts of the machines, as well as (partially) the reduction in the volumes of production of certain types of output that is necessary for replacing the worn-out equipment;

-- capital expenditures on the basis of mass types of machine tools, as well as the current expenditures of labor and materials for the creation and functioning of machine shops which provide for the adjustment, repair, and modernization of the appropriate types of technological equipment, and the production of spare parts; such expenditures make it possible to reduce the need for scarce types of equipment and spare parts being produced at enterprises with a higher level of provision with technical equipment than the machine shops in the consumer branches;

-- various current expenses which arise as a result of the existing limitations in the buildup of individual types of capital resources; one example of these expenses is the additional expenditures of labor, spare parts, and fuel in motor transport as a result of the insufficient density and low quality of the highway network in individual economic territories.

In certain branches of the economy, the role of the enumerated compensatory expenses is especially great. These branches include motor transport, the tractor pool in agriculture, the machine pool in construction, the machine-tool pool in individual categories of machine-building enterprises, and certain other spheres of use of machinery and equipment.

Technological nucleus and the periphery of the enterprise. The development of industrial production entities under the conditions of active structural changes in the economy left a deep imprint on the concrete organizational forms of their functioning. There has been formed a special type of combined enterprises with a complex multishop structure, which encompasses the basic production shops, the blank and ancillary-repair shops, the unspecialized-output, transportation, and energy services, the warehouse management, etc. The multilevel differentiation of the national economy found reflection in the structure of individual enterprises in such a way that the qualitative conformity between their final output and the technical level of production is observed chiefly for several central shops that form the technological nucleus around which the remaining types of activity are concentrated. The size of all shops at the enterprises with a closed technological cycle is determined primarily by their own production program. Therefore the scope of the production at individual shops (especially the blank shops -- the casting and forge shops) prove to be nonoptimal.

The qualitative differentiation of the structural subdivisions of industrial enterprises manifests itself for many of them in the basic production itself. For example, the intermediate position of the enterprise in the hierarchical system of the national economy is expressed in the fact that the comparatively high technical level is maintained primarily in those sectors that determine the volume of output to be produced, whereas the blank production, which guarantees the necessary quality of the initial materials, as well as the final production entities (the finishing, final operations) have technical capabilities that lag behind those of the central shops. A second concentric circle is formed by the ancillary production entities, which in a number of instances are characterized by a broad application of manual labor and a relatively low level of provision with technical equipment; a third one is made up of the transport and warehouse services; their variety and deconcentration reflect the structural dismemberment of the basic and ancillary production entities.

This kind of structure, to a definite degree, is also projected onto those shops which can be multispecialized and can have their own repair and other ancillary sectors, self-contained transport, etc. In the excessively complicated multishop composition of a number of industrial (primarily machine-building) enterprises at the microstructural level there has been established a certain macrostructural type of economy. The preservation of such enterprises undoubtedly means the preservation of the definite inertia of multiseries production, the uneven loading of individual shops, and substantial additional expenditures as a result of the small size of individual production entities. Even with the changing macroproportions, the microstructure that has developed can dictate the previous forms of links.

Interbranch balancing

Change in the system of priorities. The shifts in the distribution of the qualitative resources between the upper and lower levels of the economy are caused by the impulses generated both from the top and from the base of the economic pyramid. Let us consider first of all the consequence of the latter impulses. As was noted in [1], the compensatory effect at a definite stage in the expansion of production proves to be insufficient to create the conditions for equilibrium in the economy. In the event that the potential mass resources are, to a substantial degree, exhausted and the effectiveness of the additional compensatory expenditures is too low to guarantee the maintenance of the conditions that have developed for the buildup of production at the topmost levels, some of the qualitative resources are channeled into the lower levels of the economy. As a result, the effectiveness of the compensatory expenditures is increased, the coefficient of compensation increases, and one sees the appearance of conditions that are sufficient to maintain within the interlevel interactions the conditions for dynamic equilibrium.

Change of technology in the subdivisions of the lower qualitative levels requires those technical resolutions which are adequate for the economic conditions in the process of replacement. However, there is no mandatory conformity between the economic needs that arise as a consequence of change in the composition of the resources being used, on the one hand, and the existing capabilities of the making of technical decisions, on the other. The development of new technology and the expansion of the demand for new technical achievements are mutually linked and, at the same time, to a certain degree self-contained aspects of interlevel interaction. A certain amount of time passes between the arising of a demand for new technology and the appearance of the necessary technical decisions.

The task of the technical developments that guarantee the processes of replacement consists in proposing not some general method of improving the production at subdivisions on the lower level, but, rather, precisely that method which can be implemented on the basis of using the resources of a completely definite rank. When the economic need has already matured, but the existing results of research in the field of science and technology fail to conform to the created demand, the shifts in the system of priorities depend completely upon the technical progress in the specific area.

The simplest explanation of the fact that certain scientific-technical research projects have been lagging behind the economic needs is that the scope of the scientific-technical potential does not make it possible to have the research and development encompass completely the new spheres of production, especially in the event that comparatively high demands are made on the qualitative level of the newly obtained results, demands which make it necessary to create a new tradition in the particular area of research. However, a delay in the technical decisions can be linked not with the limited capabilities of carrying out the appropriate research and development, or with the lack of different alternatives oriented on the use of resources which correspond to the range of implementation of the qualitative changes, but, rather, with the effectiveness of the very choice, from among the existing alternatives of technological shifts, of specifically those which best conform to the economic conditions that have developed.

In the implementation of structural innovations, two stages are inevitable: the first is the rather stochastic process of competition among the alternatives, the search for the optimal ones among them; the second is the introduction of the selected innovations into practice. The planned regulation of scientific-technical progress consists in the constant balancing between the decentralization of the search for the most effective alternatives for the resolution of problems and the centralized introduction of the desirable results of the selection that has been made. The variety of economic decisions that is linked with the choice of various results of research is a mandatory statistical, probabilistic aspect of that regulation.

The possibility of rendering partial decisions more active depends upon the economic mobility of the primary cells, upon their self-interest in the introduction of new methods of production, in experimentation, etc. And yet it is precisely when the impulses that engender the replacement effects are linked with the exhaustion of the mass resources, that the economic situation can be distinguished by the greatest tenseness. The shortage of these resources requires a change in the system of priorities, the intensification of the replacement effects, the active introduction of the achievements of scientific-technical progress in the subdivisions at the lower levels of the qualitative hierarchy, and, at the same time, gives rise to difficulties in the activity of the primary production cells, and the orientation on the first-priority fulfillment of the assignments based on volumetric indicators, and hinders the carrying out of technical modernization.

The necessity of achieving a state of balance within the framework of the national economy as a whole under conditions of insufficient economic activity on the part of individual production units can lead to a situation in which the regulation of scientific-technical progress becomes one-sided. The equilibrium between the stage of the decentralized choice of the results of research and the centralized introduction is disturbed. The emphases in this instance will prove to be shifted in the direction of centralized regulation; the selective role of the decisions being made at the microlevel can be lessened, and as a result there will be a lessening of the effectiveness of the replacement effects. The process of changeover to a balanced correlation between the lower and upper qualitative levels of the economy will be carried out at slow rates.

There are completely different changes in the priorities in the distribution of resources in the event that the incentives for these shifts are linked not with the exhaustion of the mass resources, but are caused by the internal needs of the subdivisions at the upper levels. The characteristics of the mass resources exert a definite effect upon the capabilities of their development. The "qualitative distance" between the upper and lower levels, to a certain degree, exerts an influence upon the properties of the resources in the entire system, including those that pertain to the levels of higher orders. The emphasis not only upon the most rapid expansion of the subdivisions at the upper levels, but also upon their accelerated qualitative development leads to a situation in which there arises here an impulse toward a change in priorities, the increased activity of replacement, etc., even prior to the appearance of the difficulties linked with the involvement of mass resources in production. The redistribution of the qualitative resources then occurs under conditions of balancing; favorable prerequisites exist for the increased economic activity of the enterprises, and for the introduction of the achievements of technical progress. In this situation there exists an equilibrium between the phase of the decentralized assimilation of the innovations and the centralized scientific-technical policy. As a result, the effectiveness of the replacement effects is considerably higher than under the conditions of tension and imbalance.

It must be emphasized that the qualitative rank of the resources to be allocated for replacement can be, in principle, identical in both instances that were considered. One should, however, expect that the specific alternatives of the scientific-technical decisions in the latter of them will, to a greater degree, be adapted to the real economic needs.

Two aspects of the quality problem. One of the prerequisites for achieving balance in the national economy is the maintaining of definite requirements on the quality of output at all economic levels. In this instance the concept of quality of output has a narrower sense than the concept of the quality of resources, which reflects the objectively developed conditions for the reproduction of specific types of output, manpower, etc., and which also predetermines that place that the particular type of resources occupies in the interlevel interrelationships. The quality of output is the degree of implementation of the objectively necessary demands on its properties. Putting it a different way, the differences between the demands on the rank of resources, which demands are caused by the entire set of interlevel interactions, and their real rank are expressed in categories of quality of output, formation, etc.

Deviation from these objectively necessary demands on the qualitative characteristics of resources is one of the manifestations that the national economy is not balanced. One can mention two types of such deviations.

The first type is detected at the upper levels of the national economy, when the characteristics of the replacement resources fail to assure the degree of transformation of the subdivisions at the lower levels which is necessary for attaining a balanced economy. An example can be provided by the not completely satisfied demands on a number of types of machines and machinery delivered to agriculture. The problem of quality here evolves from the conservative nature of the system of priorities, the unjustifiably high rate of buildup of resources at the upper levels, and the ineffective proportions in the distribution of those resources for purposes of own reproduction and replacement.

This type also includes deviations in the properties of output at the lower levels, for example, many traditional types of raw and other materials, -- deviations from the norms and criteria that have been engendered by the objective conditions. We have in mind those circumstances when the capabilities of the quantitiative expansion of production have been exhausted, but the participation of the subdivisions at those levels in the overall system of interactions is possible only on the basis of further qualitative changes. That which is in common among the discrepancies in the necessary and factual properties of the output which are observed at the upper and lower levels of the economy in this instance consists in the fact that the qualitative landmarks exist only potentially, as a goal which must be realized.

The second type of manifestation of nonconformity between the objectively formed criteria in the demands on output and the real results consists in the fact that the actual characteristics of the output deviate from those which were formed previously, namely, in the reduction in individual production entities of the quality of output or in the lack of stability in the achieved qualitative level. The increase in load on the part of the upper levels causes the intensification of the compensatory processes, as a result of which the subdivisions of the lowest ranks are forced additionally to involve low-quality resources in production. This expansion contradicts the already established degree of providing those subdivisions with qualitative resources in conformity with the existing system of priorities. The relative quota of received qualitative resources may drop. The simultaneous effect of the noted factors leads to a decrease in the qualitative rank of the output being produced, first at the lower stages, and then the higher stages of the economic hierarchy, as to the consequence of the adaptation of the economy to the state of tension.

The unsatisfactory quality of output can be not only the result of violations in the mechanism of the interaction among various levels of the reproduction of economic resources, but also the consequence of directly subjective causes. High demand for output with fixed prices creates a situation that is favorable for the dominating position of the supplier with respect to the consumers. However, even in this instance the primary cause lies in the area of tension, the outstripping growth of demand, the conservative nature of the methods of compensation that have developed, etc.

Shortage of resources and additional expenditures. As was noted, the economy can experience two stages of a state of imbalance. At the first stage of relative shortage, the need for specific types of resources is satisfied by using other types of them, of lower orders. In this instance, forced, balancing compensatory expenditures occur. The load shifts from the top downward to the lowest levels, the exhaustion of the capabilities of which leads to phenomena of an absolute shortage, which is what characterizes the second stage.

Those groups of production entities which obtained development for purposes of compensation acquire, under conditions of imbalance, new acceleration as a result of the need to make up the shortage that occurs at various levels. We have in mind specifically those production entities which create the compensatory effect in the balanced economy (extractive production entities, the processing of raw materials, etc.). The expansion of the production of their output on the previous qualitative basis means that, under the influence of the shortage of resources, there is an increase in the participation of the subdivisions at the lower levels. There is a corresponding increase in the difficulties in the qualitative transformation of the economy. To the replacement expenditures that were predetermined by the scope of the compensatory effect under conditions of balancing, one must add the costs linked with the improvement of production with the purpose of eliminating the effect of the shortage of resources upon the subdivisions on the lower levels.

The most substantial consequence of the shortage of resources is the hypertrophy of those specific aspects in the activity of the enterprises (the striving to be self-sufficient, to expand the output of nonspecialized output, to achieve low specialization, etc.), which are objectively typical of the stage of development of production with a high percentage of compensatory expenses and a large degree of nonhomogeneity in the resources being consumed. In an insufficiently balanced economy, within the confines of individual enterprises, associations, etc., there arise adaptive mechanisms, the action of which is directed at the complete or partial overcoming of the negative results of the direct shortage of resources. The content of these mechanisms lies chiefly in the creation of a system of additional reserves.

The expansion of the production resources in the hands of the consumers can be caused by the intensification of the instability of the economic ties under conditions of an unbalanced economy. The basic types of reserves to be used as a means of increasing the reliability of the activities of the enterprises can be summarized as the working out of problems in the production of scarce articles, the formation of surplus reserves, and the formation of manpower reserves in excess of norm, which make it possible to expand the production of output during periods of the most complete provision with material resources. The striving to be self-sufficient in the event of a shortage of resources makes even more strongly expressed the phenomena of diversification, which are typical of an economy with a sharply differentiated qualitative composition of production. The new complication of the enterprise's structure intensifies all the negative consequences of that expansion of its periphery which occurred during the period of balanced growth. The additional expenditures engendered by the imbalance of the economy, obviously, have a completely different nature than the costs of a compensatory nature (despite the outwardly similar form). They can be viewed as losses caused by deviation from the completely natural interaction among the individual parts of the national economy.

We have already noted that the macrostructural qualitative correlations are projected onto the microlevel and recorded there in the form of a definite type of microstructure phenomena. Analogously, the nature of the balancing of the economy as a whole also receives reflection upon the microlevel, and is recorded in the manifestation of definite production and organizational stratifications.

A change in the production microstructure that has developed is a mandatory element in the qualitative development of the economy. However, for this purpose, in addition to the elimination of the consequences caused by the active use of the compensatory effect, it will also be necessary to overcome that barrier which arose under the influence of the conditions governing an unbalanced development. The prolonged preservation in the economy of conditions of imbalance is fraught with the possibility that they will lead to additional obstacles on the path of qualitative growth. The effectiveness of the replacement effects is reduced, inasmuch as they must be burdened with the expenditures intended for eliminating the material consequences of the economic disproportions. The imbalance thus preserves the qualitative differences that have developed, and hinders the process of remodeling, renovation, and the introduction of the achievements of scientific-technical progress.

Initial resources and variety. In addition to the reduction in quality, the reaction of production to a shortage of resources in the first phase of imbalance consists in the adaptive shifts in the variety of the output being produced. It was mentioned previously that a prerequisite for the creation of the compensatory effect in the national economy is the orientation of the reproduction of the lower and intermediate categories of economic resources on the multipurpose, relatively unspecialized forms of economic activity. The narrowing and impoverishment of the products list under the press of a shortage of resources means the appearance of new causes for the preservation of a high percentage of articles with rather clearly expressed attributes of specialized application. Under specific conditions it is difficult to establish a boundary between the multipurpose nature of production in a balanced economy that is linked with the mechanism of compensatory expenditures, and the influence exerted on the degree of complexity of the output products list by the phenomena of imbalance. Its undesirable results can be expressed only in the fact that the previously confirmed tendency is preserved. Nevertheless, it is necessary to see the fundamental difference in the reasons that have consequences which are similar with regard to their outward expression.

The forms with which the shortage of initial resources exerts an effect upon the makeup of output are different, depending upon the type of resources and the sphere of their use. Inasmuch as an overall shortage of resources, through the system of compensations, in the final analysis is most acutely reflected in a shortage of labor, the most widespread form of the influence exerted by the imbalance of the economy upon the variety of output to be produced is the forced limitation of the percentage of labor-intensive articles. Thus, at enterprises in the processing branches of industry there can coexist the strivings for the preservation of increased labor compensatory expenditures (reflected in the high labor-intensity of the ancillary, transport, and various types of additional production entities) and for the reduction of labor expenditures in the basic production by means of simplifying the makeup of the output being produced and forced shifts in its variety. Its impoverishment under conditions of an unbalanced economy can occur not only under the effect of a shortage of resources, but also as a result of the need to accelerate the production of scarce output. The more prolonged the period in which the variety is simplified under the influence of disproportions, the more complicated it is to resolve the tasks of reducing the percentage of the primary, objectively-based, phenomena of the trend to multipurpose production entities, the expansion of the products list, etc.

Conditions for active interlevel interactions of the replacement type

The formation of the conditions for the active development of the processes of replacement requires a purposeful economic policy at the level of the individual ministries, associations, and enterprises. The chief elements of that policy are the creation and use of the material prerequisites for changing the types of technological schemes, the specialization of production, the mechanization of labor, the role of the ancillary subdivisions at enterprises, the correlations between the expenditures for production and for operation, etc. Such shifts in the economic microstructure mean, firstly, the overcoming of the consequences of the imbalance in the economy, the disproportions that have occurred, and, secondly, the changeover at the microlevel to the methods of developing production, to the adequate demands for intensification, which presupposes the narrowing of the role played by the compensatory mechanism and the intensification of the importance attached to the effect of the replacement expenditures.

Shifts in technological schemes based on a change in the structure of the resources in the national economy have, and will continue to have, varied manifestations. Let us consider a few of the rather typical prerequisites for increasing the activity of the replacement effects.

Mechanization of labor. One of the indicated manifestations is the increase in the role of the economizing of live labor as an independent goal of the technical policy. For a definite moment, the increase in labor productivity at individual enterprises was chiefly a by-product of the intensification of the technological conditions, and the increase in the unit capacity of the assemblies. The acceleration of the rates of production growth and the concomitant saving of capital resources were the predominant goals of the technical innovations at the middle levels of the economy. At the stage of active intensification of the national economy, the percentage of capital investments to be allocated directly for the economizing of labor expenditures must increase. The increase in the expenses for the mechanization of labor, and for the economizing of labor, presupposes an even distribution of the mechanization means among the final operations of materials processing, the blank-production sectors, the stages of assembly, packing, etc. The mechanization of all these links requires the creation of a number of fundamentally new special machines and machinery.

Ancillary production is the most accessible area of a purposeful economizing of manpower, and one of the important objects of the technical innovations and the introduction of means of mechanization. The extent of the expenditures to free a single worker in the sphere of transport-and-warehouse operations is substantially lower than in basic production. At the same time, the mechanization of the service operations cannot be a self-contained process. Sharp shifts in the economizing of labor in ancillary production are accessible only on the basis of its efficient organization. But the increase in the efficiency of the ancillary processes can be only the consequence of fundamental technical and organizational changes in the basic production. The transformation of the service sectors in many instances is only the final stage of its technical remodeling, renovation, and specialization, and the change in the economic and organizational principles of functioning.

In the basic production one of the primary directions for reducing the expenditures of labor is the economizing of the ancillary work time on the basis of automation. However, this requires economic prerequisites which are not exhausted by the presence of new technological systems. With the dissociation of the individual groups of machine tools, the multipurpose nature of the operations to be executed, and the variety of the products list in the output to be produced, the automation of production does not resolve the fundamental problems of economizing work time, and the results of the introduction of automatic lines can be of only a partial nature. If the optimal program of such a line is lower than the output that has been developed at the enterprise for the particular type of output, the economizing of work time is achieved only at a high price. Automation is effective only within the confines of technological schemes that are linked with the specialization of production. Otherwise automation can become an end in itself.

The expenditures of special efforts in the area of labor mechanization mean the appearance of new demands not only on its technical means, but also upon manpower. In production entities that are being mechanized, the role of the labor factor fundamentally changes. The process of making the system of personnel training conform to the new production demands is a most important condition for the transformation of the basic spheres of application of relatively unskilled labor. In areas of the national economy where this conformity and the necessary union of the means of mechanization and manpower do not exist, there is a reduction in the actually achievable effect. For example, the low level of proficiency of mechanizers in agriculture can become one of the reasons for what is in a number of instances the insufficiently effective use of the capital investments allocated for that branch.

Specialization of production. The chief role in the creation of the prerequisites that contribute to the reduction of the relatively ineffective labor and material expenditures belongs to the specialization of production. Specialization of production makes it possible to introduce technology which corresponds to the changed relationships between the qualitative and mass resources, and predetermines the effectiveness of the expenditures channeled into the economizing of scarce elements of production.

Specialization and concentration of production require an entire complex of coordinated efforts: the allocation of capital investments to reorganize the enterprises and to isolate the independent blank-production entities, the expansion of production of special equipment; the increase in the intensity of assimilation of economic territories; the more active involvement in the international division of labor.

The effect produced by specialization consists primarily in the fact that the purposefully oriented types of resources occupy the place of the multipurpose ones, and simultaneously there is a reduction in the increased compensatory expenditures that are typical of the previous forms of production. At the same time, the overall effect of specialization can be subdivided into two components, linked with:

1) the replacement of multipurpose equipment by new, specialized equipment; the introduction of automatic lines, etc., that is, with the simultaneous renovation of the production apparatus;

2) the creation of the necessary economic-organizational conditions for the effective use of the qualitative resources that have already been accumulated. The shifts in their national-economic structure and distribution can outstrip the changes occurring in the microstructure of the economy, and so long as there is no conformity between them, the definite replacement effects only potentially are a means of economizing the mass resources. Thus, certain groups of machine tools and machinery that were employed previously only periodically, when filling certain types of production orders, under conditions of specialization become an organic component of that set of equipment which entirely corresponds to the structure of the production program.

The level of modern technology in blank-production shops in certain machine-building enterprises is considerably higher than the level of technology and organization of production. In the blank-production process, expensive machines are currently in operation, and complete mechanization and automation have been carried out. However, the effect of the technical means being used is insufficiently high and can be substantially increased under new technological and organizational conditions. Simultaneously it is possible to lessen the load placed on the engineer-technical personnel in view of the decrease in the variety of the tasks to be resolved and the duties that used to reflect the diverse, unspecialized nature of production, the frequent replacement of the models being developed, and their constantly increasing complication. At such time, favorable opportunities are created for resolving creative tasks, for developing the scientific-technical activity of that category of workers at the enterprise. As a result of specialization, there is a change in the functions of control of the enterprise: there is a reduction in those functions which are aimed at providing materials, documents, and cutting tools, and there is an increase in those that are linked with the planning of the technical policy and with the improvement of the organization of production and the methods of control.

The regulating role of the level of specialization with respect to the effectiveness of the replacement effects is especially apparent as applicable to the problem of the change in the technical level of ancillary production. With the rejection of the multishop structure in the enterprise, a structure oriented on the satisfying of various needs for unspecialized activity, the load placed on the ancillary services is sharply decreased. This pertains especially to the transportation and warehouse managements.

Specialization of production does not mean the changeover to activity under conditions of completely similar production orders and output structure. It is necessary to guarantee, on the one hand, the specialization of equipment in conformity with the actually achieved narrowing of the products list at individual enterprises, and, on the other, the counter-adaptation of the technological systems to the preservation of its relative diversity within the limits of the measures to be carried out.

In machine-building, where the problem of specialization is the most acute, a second trend, as is well known, lies in the standardization of blanks, parts, and assemblies, the unification and typification of the technological processes, and consequently, the technological equipment. The unification of small consignments of articles that are homogeneous from the point of view of design and technology; the introduction of order with regard to their products list and standard dimensions; the achievement of the uniformity of the design peculiarities of the articles intended for general production purposes make it possible to change over to the flow-line methods of production, which require the use of specialized machine tools and equipment.

The tendency toward development in a number of branches of machine-building and of modernization of their enterprises consists in the gradual crowding out of the production of individual assemblies and parts beyond the confines of the enterprises that produced finished output, and in the limitation of their functions to chiefly assembly. The possible degree of transformation of the enterprises that have developed with a multipurpose structure and with a closed technological cycle is evaluated in various ways.

The prospects are more close for the expansion of specialization within individual enterprises and the reorganization of production on that basis. If the possible level of narrowing of the products list for the output being produced and the corresponding degree of object specialization are such that the machine-building enterprise unites several relatively independent production entities, then a major step in the direction of simplifying its structure, eliminating the system of self-contained machine and assembly shops that operate in parallel with one another, and in duplicating the equipment in various sectors with a low coefficient of its load lies in the changeover to the partial forms of specialization, for example, to specialization by parts and by groups. The latter consists in that technological-organization segmentation of production when the function of individual subdivisions are linked not with the production of specific types of finished articles, but are concentrated on the manufacture of parts that possess similarity in design and technology, but are included in different assemblies. The principle of concentration of homogeneous operations, on which principle the technological processes in large-series and mass production are based, thus extends to small-series production with all the concomitant consequences. Until the scope of output of production, and the regional density of its consumption and other factors make it possible to change over to the formation of cooperative enterprises on a broader scale, the intraplant specialization on the basis of such principles as the parts-group principle and others are the most effective way to create the conditions for the technical remodeling of small-series production.

The factors that retard specialization can be divided into two categories. The first is the progressive complication of the products list for the articles, which products links grows considerably faster than the number of production units -- this is a natural consequence of the qualitative growth of the economy. The second category is the preservation of the qualitative differentiation of the consumers as an additional cause of the deepening of the differentiation of production and the lowering of the level of its concentration. Thus, it is a rather typical situation when the turnover of a definite type of blanks is limited to the ministerial framework despite the desirability of a territorial system of providing blanks. It is precisely herein that one sees one of the chief difficulties standing on the path of the formation of territorial production complexes. In the instance that the motives for qualitative differentiation prevail over the motives for branch differentiation, the output can be produced outside the branch of basic specialization under conditions of low concentration of production, in small series, but with a consideration of the consumers' quality needs.

The factors for retaliation of specialization which pertain to the second category are, in their turn, subdivided into two groups: one is determined by the objectively existing needs that are influenced by the interlevel qualitative differences; the second arises as a result of the organizational preservation of the methods that are typical of the already outlived conditions for the qualitative differentiation of production.

Reduction of operational costs. The expenditures with the aid of which the compensatory effect was formed in the sphere of the operation of machinery and equipment in a number of instances fail to conform to the objective needs of the economy, which reflect the shifts occurring in the structure of the national-economic resources. The reduction of the costs of operation becomes a special purpose of technical policy. The rates of that reduction, for a long period of time, were substantially lower than the rates of reduction in the expenditures for production. The reduction of operational costs is linked with the special expenditures of qualitative resources at the source of production which are channeled into the improvement of the properties of the initial materials; the raising of the level of the final finishing of the parts; the design improvement of the machines which facilitates access to individual assemblies and parts and their easy removal, their interchangeability during repair, control, etc. It is also necessary to change the composition of the resources at the stage of use of the machines and equipment (raising the proficiency level of the workers, the quality of the basic and auxiliary materials, repair equipment, etc., that are being applied. For certain branches (agriculture, construction) it is necessary to create machines with a large reserve of reliability to allow for deviation from the operating rules.

An analysis of the factors for reducing the costs of operation as a type of compensatory expenditures leads to their division into expenses that are caused by current factors (imbalance of the economy) and those that evolve from the developmental strategy itself. It is obvious that the influence of the latter group of factors is predominant. For example, available data concerning the rate at which tractors and agricultural machinery go out of commission attest to the fact that this is influenced by the consequences of design shortcoming to a substantially greater degree than by the results of the inferior manufacture of the machines. Thus, steps for the current regulation of quality do not resolve the problems of reducing the operating costs. The chief role here belongs to the fundamental changes in the technological level of the machinery and equipment being produced.

As a result of the need to reduce the compensatory expenditures of operation, the problem of reliability and service life of the machinery and equipment takes on new form. Over a prolonged period of time, that problem was summarized as the conditions of operating equipment in those subdivisions where technical achievements are concentrated, and where special demands are made on definite parameters the use of the machines. The intensification of work processes, temperatures, loads, and the increase in speeds lead to an increase in the working effect upon the equipment and to the accelerated loss of such initial properties as precision, reliability, etc. One of the manifestations of the qualitative growth of production in subdivisions at the upper levels is the constant establishment of the conformity between the working requirements of productions and the operational properties of the equipment..

The evaluation of the parameters of reliability and service life in the subdivisions where the rates of introduction of the achievements of scientific-technical progress are less high, thus, occurred, from the point of view of the guarantees of maintaining the necessary volume of capacities, the increase in the beneficial fund of time for operation of the machine tools and machinery. The extent of the additional expenditure of labor and materials for the preservation of the equipment in a state suitable for operation is, in certain spheres, a number criterion -- and in the economy as a whole, a more and more widely employed criterion -- for evaluating the parameters of reliability and service life.

The scope of the operational costs is substantially determined by the extent of the gap between the times for the obsolescence of the equipment and its actual breakdown. The greater that gap, the higher the load placed upon secondary capital and current repair operations. And yet any repeated repair not only requires constantly increasing expenses, but also increases that part of the actual service life of the equipment during which the costs of operation increase nonlinearly.

The raising of the technical level of the equipment, the extension of its service life and reliability, and the resultant increase in the time during which it is physically in service constitute only one of the ways to reduce the gap between the deadlines for the actual breakdown and the obsolescence. One can simultaneously take another path -- that of reducing the periods of obsolescence. However, those periods reflect the rates of the qualitative growth of production, the speed of its shifting from one level to another. But the qualitative maturation of individual production entities is the result of the combined replacement effects. The more intensive this changes in the related elements of production, the stronger the tendency toward the decrease in the time periods for obsolescence and the greater the limitation on the action of the nonlinear effect of the growth of operational expenditures.

Normalization of the interbranch distribution of manpower. The movement of manpower among branches is a mandatory condition for interlevel interactions. The rates of increase of the level of proficiency of the workers do not coincide with the rates of the qualitative growth of the subdivisions in which they are employed. There is a shifting of the workers from the work sites that require a relatively low level of proficiency to places that correspond to their improved knowledge and practical skills. It should be noted that the movement of manpower among enterprises is influenced both by their shifting along the qualitative ladder from bottom to top, and also from top to bottom. That limited quota of qualified manpower which is isolated by the subdivisions at the lower levels can form by drawing on workers at the subdivisions that are situated higher.

The traditional vertical directedness of the movement of manpower from one economic level to another expressed itself primarily in the overflowing of the most highly trained workers from agriculture into construction, the extractive branches of industry, and the sphere of circulation; from construction and the extractive branches into the processing branches, in the confines of which there also exist a number of intermediate stages in vertical movement. That which has been stated does not mean that construction and the extractive branches of industry are entirely equivalent to the lower levels of the economy. The vertical shifting as a result of occupational growth can also occur within the confines of those branches; however, the spheres of application of skilled labor in them are incapable of absorbing all the workers who wish to change the nature of their production activity. Thus, the greater manpower turnover in subdivisions with a relatively low overall level of worker skills and a lesser turnover in subdivisions with a high level represent a completely natural phenomenon in economic life, a phenomenon which becomes especially intensified during periods of active structural shifts. The data pertaining to the developed capitalist countries attests to the fact that in those countries also, during period of high market conditions, manpower turnover achieves an extremely noticeable extent.

The thesis that a positive effect is exerted on the economy by the interbranch and interlevel overflow of manpower at the present-day stage, which is marked by the necessity of re-examining the priorities that have developed to the advantage of the subdivisions at the lower tiers, requires definite correctives. For example, at the present time the qualitative growth of certain spheres of the economy is linked with the need to reduce the manpower turnover in them, and to deter the drain of skilled personnel. The intensification of the replacement effects can mean the relative reduction of the flow of workers having an increased level of proficiency from the lower levels to the upper ones. The personnel problem in such branches as agriculture and construction can be resolved only as a result of the normalization of the flow of skilled manpower from them, on the basis of special measures to assign experienced workers permanently. Simply by means of the system of production training that constantly compensates for the drain of manpower, it is impossible to cover the need for the rise in the technical level of production in those branches. The fact of the matter is that production experience under the conditions that have developed constitutes the chief component of the proficiency, the importance of which is considerably greater than the preliminary training.

From the point of view of the permanent assignment of manpower in the mentioned branches of the economy , a smaller and smaller role is played by the level of payment of labor and a greater and greater one is played by such factors as the working and everyday living conditions, the opportunities for the realization of income, etc. The problem of the working conditions is a very important aspect of the social and technical policy in the branches of the national economy where difficulties arise with regard to the attraction of new personnel and the improvement of the workers' age makeup. One example may be provided by animal husbandry, where present-day living conditions do not satisfy many representatives of the young generation of the peasantry, and therefore the production conditions in that branch and its conditions thus require fundamental changes. The need to improve the workers' everyday living conditions requires the redistribution of funds to the benefit of those branches which are becoming the object of the technical reforms, but which are lagging behind with regard to the expenditures that are connected with production [illegible]ments and that provide for the expansion of the housing and communal management and the nonproduction sphere. A problem that is especially acute is the problem of the agricultural infrastructure, the resolution of which is possible only on the basis of a balanced concept of resettlement.

A change in the conditions for the realization of monetary income as a factor for regulating the drain of manpower from the branches in favor of which the system of priorities is being transformed consists primarily in increasing the accessibility of commodities that provide for the satisfying of the demand that increases with a rise in income. Thus, the basic prerequisite for the normalization of the process of redistribution of manpower together with the intensification of the replacement effects is the increasing of the share of the subdivisions at the lower level in the distribution of the resources of consumption the observance of the principle of the qualitative complementariness with respect to the replacement streams of the production and nonproduction resources.

The normalization of the interbranch shifting of manpower requires not only the regulation of its drain from branches with a high percentage of relatively unskilled labor, but also the creation of conditions for providing labor resources to the high-priority new branches. A comprehensive expression of the concentration of the nonproduction resources of that qualitative order which is adequate for the situation of the new branches in the economic hierarchy is provided by the policy of urban development. The point of departure of that policy should be the attitude to the city as being that territorial combination of diverse production entities with which the process of economic growth provides the greatest opportunities for raising the level of proficiency, the standard of living, and the shifting of the workers as the change in their occupational level occurs. Investments in housing construction, utilities, and projects designed for cultural and everyday needs must correspond to the degree of the city's dynamism, which is influenced by its economic structure.

It is necessary to differentiate between the prolonged tendencies of regulation of the distribution of manpower and those measures which are linked with phenomena that arise as a consequence of the existing economic disproportions. The measures to eliminate a shortage of various categories of skilled manpower are, as a rule, of an urgent nature. Urban-development decisions and methods of assigning manpower which are engendered by extraordinary conditions can create obstacles on the path of realizing a planned process that evolves from the long-term strategy in the distribution of economic resources.

The role of foreign trade in the replacement effects. Foreign trade, throughout the history of the Soviet economy, has been an active instrument for realizing the basic goals of its development. The dynamics and structure of foreign-economic ties corresponded to specific needs and peculiarities of the mechanism of economic growth at individual stages of that economy. The most important task of foreign trade is participation in the process of the technical re-equipping of the country, in the creation of new branches, in the acceleration of structural shifts, and in increasing the present-day industrial potential of the Soviet economy. At the first stages of the structural changes in the USSR national economy, there was a considerable contribution made by foreign trade to the development of motor-vehicle production, tractor production, and after the Great Patriotic War, to the development of ocean transport, the chemical industry, and other branches. The principles of the formation of foreign-economic ties corresponded to the overall principles of the formation of the compensatory effect: relatively surplus raw-material resources, the increase in the production of which required the expenditures of labor and relatively simple technical means were exchanged for qualitative ones.

In addition to the buildup of production in the most advanced spheres of the economy, the function of foreign trade also consisted in maintaining the mechanism that had developed for the reproduction of the economic resources. Inasmuch as its chief element was the interaction of the raw-materials and processing branches, an interaction based on the expansion of the former branches, one of the important tasks of foreign trade was the creation of additional opportunities for increasing the capacities in certain of the extractive branches, electric power engineering, and transportation.

Starting in the late 1950's there was an intensification of the role played by foreign trade as a factor for eliminating disproportions and raising the level of balancing.

The participation of foreign trade in increasing the activity rate of the replacement effects means the involvement of imported technology for the purpose of remodeling and constructing new enterprises in a number of branches of machine-building, including the branches that provide equipment to enterprises in Group B, in light, food, and paper industries, etc. We have in mind first of all those branches which, by virtue of historical reasons, can rely only to a limited degree on domestic production of technological equipment.

It must be noted that the use of imported technology to intensify the replacement effects, and to change the system of priorities in the distribution of qualitative resources, is possible only within those limits in which the expansion of the sphere of use of scarce imported output is covered by a corresponding increase in the sources of export resources. The most preferable and most desirable method of increasing the export capabilities consists in increasing the competitive ability of of those branches of machine-building (heavy, transport, individual types of machine-tool-building) which, by virtue of the traditions that have developed for economic growth, have received the greatest development. Progress in this direction will contribute to reducing the load placed upon the raw-materials branches.

The problem consists in the fact that the effect derived on the basis of imported technological schemes in the area of the intensification of production and the economizing of raw materials and fuel is partially canceled by the necessity of increasing the production of raw materials to meet the export needs. The change in its structure must lead to a situation in which the steps that provide for a reduction, in the final analysis, of the load placed upon the raw-materials branches, the decrease in the tension in providing the economy with individual types of resources, will not mean the appearance of any additional sources of demand for raw materials, or contain within themselves the potential capabilities for the appearance of new factors of tension.

The important role of foreign trade in the structural transformations of the economy is limited to the forced withdrawal of foreign resources in order to prevent phenomena of disbalance and to eliminate disproportions. It is necessary also to consider the fact that, in all instances of use of imported technology at lower economic levels, there arises the problem of qualitative complementariness. The unification of qualitatively diverse elements of production and the concomitantly inevitable losses can, in a number of instances, serve as the cause of the ineffectiveness of the application of imported equipment under the actual conditions of our economy.

As a result of the overall qualitative growth of the economy and the concomitant increase in the export resources, there will be an increase in the capabilities for the rather broad use of imported technology for the structural reorganization of the national economy.

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IMPACT OF NEW TECHNOLOGY ON PRODUCTION VIEWED

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/Article by A. I. Anchishkin: "Scientific and Technical Progress and the Intensification of Production"/

/Text/ The socio-economic prerequisites and the directions of the acceleration of scientific and technical progress in the 1980's--the main physical factor of the intensification of production--are examined in the article. Some principles of the elaboration of the Comprehensive Program of USSR Scientific and Technical Progress as the main form of the substantiation of the uniform technical policy are also stated.

The decisions of the 26th CPSU Congress on the main directions of USSR economic and social development for 1981-1985 and the period to 1990 continue the policy of the party of expediting scientific and technical progress and intensifying production, which was specified by the decisions of the 24th and 25th congresses. In the main task of the 11th Five-Year Plan it is formulated that the further increase of the well-being of the Soviet people will take place on the basis of "the acceleration of scientific and technical progress and the changeover of the economy to the intensive path of development" /6/.

This provision is a further development of the instructions of the 24th and 25th CPSU Congresses: "...bearing in mind the need to step up the growth rate of labor productivity," L. I. Brezhnev noted in the Accountability Report of the CPSU Central Committee to the 24th congress, "it is necessary to approach the main problems of economic development. Here the acceleration of scientific and technical progress is being placed in the forefront from the point of view of both the immediate tasks and the long-range future" /4/. When characterizing the key problems of the development of the Soviet economy at the 25th congress it was again indicated that the acceleration of scientific and technical progress remains an urgent task, that social problems can be successfully solved only on this basis /5/.

Consequently, both the 1970's and the 1980's are united by the general policy of the CPSU of the acceleration of scientific and technical progress, as the main physical factor of the intensification of production and the increase of its efficiency and thereby as a mandatory condition of the increase of the well-being of the people. Such a unity and consistency of party economy policy in past and coming decades are dictated, as has been repeatedly noted in the decisions of the congresses and in the speeches of L. I. Brezhnev, by the community of the objective conditions of the present stage of the development of the Soviet economy.

First, there are the achieved enormous scale of production, especially in the fuel and raw material sectors, and the scale of capital construction and labor inputs in all spheres of the national economy, which are creating the necessary material conditions for the shift of the center of gravity in the expansion of production to intensive factors.

Second, there is the gradual contraction of the extensive sources of economic growth, first of all the slowing of the dynamics of manpower, fuel and raw material resources, as well as the slowing of the dynamics of capital investments, which was noted starting in the 10th Five-Year Plan.[1] The saving of production resources is thereby becoming a mandatory condition of the steady growth of the national economy.

Third, there is the acceleration of the structural and assortmental changes in production, which is conducive to the more complete satisfaction of social demands. Under the conditions of the slowing increase of manpower and material resources such acceleration presumes an increasing scale of their redistribution.

Fourth, there are the enhancement of the role of the social factors of economic growth and the increase of the direct dependence of the process of the intensification of production and the rate of scientific and technical progress on the educational and skills level of workers and on the attitude of each worker and each collective toward the use of the production potential and toward the achievement of the end results.

It is also obvious that the considerable expansion and extension of foreign economic relations, especially the intensification of the integration processes within CEMA, are among the most important conditions of the development of the Soviet economy at the present stage.

The task of accelerating scientific and technical progress and changing the economy over to the intensive path, which has been formulated in party documents, thus reflects the established objective requirements and conditions and marks the transition of our national economy to a qualitatively new, higher stage of its development.

The objective conditions discussed above formed gradually. The need for the changeover of the Soviet economy to the path of primarily intensive development, as the main direction of the economic strategy of the party, was indicated for the first time in the speech of L. I. Brezhnev at the December (1969) CPSU Central Committee Plenum /2/. Since that time the qualitatively new attributes of the development of the Soviet economy have become more and more prominent, perceptible. The need for its changeover to the path of intensive development has intensified. Much was done in this respect during the Ninth and 10th Five-Year Plans. At the same time "...it has so far not been possible to bring the mechanism of management and executive discipline up to the level of present requirements. This has complicated the turn to efficiency and the changeover of the national economy to the path of intensive development" /3/.

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[1] During the 10th Five-Year Plan capital investments increased as compared with the Ninth Five-Year Plan by 29 percent, while during the 11th Five-Year Plan their increase by 12-15 percent is planned /6, 7, p 36/.

Thus, during the 11th Five-Year Plan and the 1980's as a whole the problem of the all-round intensification of production is becoming more and more pressing, and hence the directions of scientific and technical progress, which ensure the changeover of the Soviet economy to the path of intensive development, are acquiring even greater urgency. It is obvious here that the rate of this reorganization of the economy depends not only on scientific and technical progress, but also to no less an extent on the improvement of the economic mechanism and especially on social factors.

Below it will be a question of the forms and directions of scientific and technical progress which, in our opinion, will play a decisive role in the intensification of social production during the 11th Five-Year Plan and the period to 1990.

The /saving of production resources/ /in italics/, material and manpower resources, and the stepping up of the policy of economy in all the sectors of the national economy are specified in the draft of the Main Directions as one of the central tasks of the 11th Five-Year Plan and the subsequent 5-year period.

The productivity of social labor should be increased during 1981-1985 by 17-20 percent with an increase of the national income used for consumption and accumulation by 18-20 percent, while during the 10th Five-Year Plan the increase of the productivity of social labor was 17 percent with an increase of the national income used for consumption and accumulation by 20.5 percent /6, 8, p 49/. Thus, a steady increase of the national income will be ensured during the 11th Five-Year Plan with a slower increase of labor expenditures in the sphere of physical production as compared with 1976-1980. At the same time in the European part of the country and in the Urals it is planned to develop industry without an increase of the number of workers, while in Moscow and Leningrad it is planned to do so on the basis of the leading increase of labor productivity as compared with the growth of the production volume.

It is obvious that under such conditions the labor-saving directions of technical progress should undergo more rapid development, especially at those works and in those regions, where there will be no influx of additional manpower. During the 11th and subsequent five-year plans the process of mechanizing manual labor, first of all in auxiliary and subsidiary jobs, will be expedited. As the estimates of the Comprehensive Program of Scientific and Technical Progress and Its Socio-Economic Consequences up to 1990-2000 showed, the potential technical means exist to release 20-25 million people from the sphere of manual labor /9/. In conformity with the 12 July 1979 Decree of the CPSU Central Committee and the USSR Council of Ministers on Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality it is envisaged to draft and implement a goal program on the reduction of the use of manual labor. To implement such a program it will be necessary to develop first of all those sectors of machine building, which make it possible, given the already achieved technical level of production and the tools of labor, to release manual labor on a massive scale with relatively few capital expenditures per workplace. This pertains first of all to the mechanization of loading and unloading operations, finishing and auxiliary operations in construction, labor in livestock husbandry, auxiliary and installation operations in construction and repair work in all the sectors of the national economy. Given the limitation of capital investments it is necessary to seek those technical decisions which would make it possible to mechanize manual labor by the most "inexpensive" means.

In particular, the increase of the level of specialization of both basic production and repair work makes it possible to mechanize manual labor by the most economical means. And, on the contrary, a low level of specialization causes a large scale of manual labor. For example, the lack of the specialized (firm) repair of metalworking equipment had the result that the number of workers employed in its repair exceeds by fourfold the number of workers employed in its production /10/. On the other hand, precisely the development of the specialized repair of tractors and agricultural equipment is promoting the mechanization of labor in this sphere.

The main directions for 1981-1985 set stepped-up assignments for the saving of currently critical material resources—fuel and metal. During the 11th Five-Year Plan it is planned to save 160-170 million tons of conventional fuel, to decrease the specific consumption of rolled ferrous metal in machine building by not less than 18-20 percent and in construction by 7-9 percent and so on.

In order to estimate the planned scale of the saving of fuel and raw materials resources, it is necessary to compare it with the increase of the output of fuel and raw materials. Thus, for example, during 1976-1979 the average annual increase of the production of fuel was 70 million tons of conventional fuel /8, p 57/; the outlined scale of the saving of fuel thereby exceeds a 2-year increase of its production. A similar conclusion can be arrived at with respect to the main raw material resources. In other words, the long-range needs of the national economy for fuel and raw material resources can be met only in the case of the increasing scale and role of their saving.

Technical progress in all the sectors of the national economy, both those which produce and process fuel and raw materials and those which consume them, is called upon to provide during the 1980's a saving of fuel, power, ferrous and nonferrous metals, lumber and construction materials on such a scale and at such a rate as have never yet been achieved in our national economy. In this lies one of the main manifestations of the changeover of the Soviet economy to the path of intensive development.

During the 11th Five-Year Plan energy-saving technology should undergo especially rapid development in all sectors--in metallurgy (the increase of the proportion of the continuous teeming of steel) and in the production of construction materials (the production of cement by the dry method), in transportation (the increase of the proportion of diesel engines) and in the construction of apartment houses (the increase of their insulation) and so on. An especially critical type of fuel and organic raw material, petroleum, will be replaced on an ever increasing scale by atomic energy and water power.

The saving of ferrous and nonferrous metals will be achieved in the future first of all by bringing the assortment of rolled metal and the quality of the metal closer to the demands of machine building and construction. It is planned, in particular, to increase by 1.5- to 2-fold the production of cold-rolled sheet, rolled metal with strain-hardening heat treatment and other most economical types of rolled metal. In the end this should lead to a substantial increase of the efficiency of rolled steel products in machine building, which at present is 0.7-0.73, that is, 27-30 percent of the rolled products ends up as scrap [11]. The present achievements of science make it possible to increase this coefficient significantly, in a number of instances to 0.9-0.95 [11, p 114], that is, the technical potentials of saving rolled ferrous metal products are estimated in the many millions of tons of rolled ferrous metal products a year.

The efficient use of secondary fuel and raw material resources holds a special place in the plans of national economic development for the 1980's. Such large-scale measures, which are significant with respect to their national economic results, on the secondary utilization of fuel and raw materials and of production waste have been envisaged for the first time in our planning practice. It can be presumed that the circulation of fuel and raw material resources in the national economy is becoming an object of planning. The most important types of planned secondary material resources are heat and power, metals, timber and paper raw materials. For example, on the basis of the use of blast-furnace and coke-oven gas it is proposed to develop gas heat-recovery turbines. Secondary metallurgy, that is, the use of the scrap of metallurgical production and machine building, is making it possible to save both ore raw materials and energy resources. The expenditures of energy on the production of a ton of secondary metals are one-twentieth as much for aluminum, one-tenth as much for nickel, one-sixth as much for copper and one-fourth as much for zinc [12]. Enormous reserves exist in the sphere of the secondary use of timber raw materials and scrap paper. Thus, in 1979 only 22 percent of the scrap paper was procured, while 1.5 million tons of this most valuable raw material were lost [13]. It is obvious that both technical progress and the organization and planning of production should be aimed to a considerably greater extent than before at keeping within the sphere of economic circulation an every increasing amount of fuel and raw material resources.

It is well known that biological raw materials, mainly of agricultural origin, are among the most critical and high quality types of raw materials. The economical use of these raw materials and the attainment of the maximum final product from them with the retention of the quality are one of the most important directions of scientific and technical progress. Measures which are aimed at the saving of agricultural raw materials and at the leading growth of the final product of the complex as compared with the dynamics of agriculture itself, occupy a major place in the plans of the development of the agro-industrial complex, which were approved for the 11th Five-Year Plan. During the 11th Five-Year Plan it is envisaged to devote priority attention to the preservation and efficient use of the agricultural products already being produced and to the assurance of the coordinated increase of their production with the improvement of the keeping capacity, transportation, processing and delivery to the consumer.

Without examining the entire set of changes being planned in the structure of the agro-industrial complex, let us note that these changes and the technical measures connected with them are aimed first of all at the saving of agricultural raw materials. It is planned to reduce considerably the use of food raw materials and natural fibers for technical purposes. It is envisaged, in particular, to replace natural fibers for technical purposes as much as possible by chemical fibers and fabrics by nonwoven materials, and to decrease considerably the consumption of food raw materials when producing nonfood types of products.

The reduction of the consumption of feed grain per unit of livestock output on the basis of the solution of the problem of fodder protein is becoming the most important direction of the saving of agricultural raw materials. Fodders, which are balanced with respect to proteins, are making it possible to increase considerably the yield of the final product of animal husbandry per fodder unit. For this purpose during the 11th Five-Year Plan it is planned both to expand the plantings and increase the output of high protein crops (soybeans, rape, peas, alfalfa, clover, lupine) and to ensure a high rate of development of the microbiological industry (by 1.8- to 1.9-fold during the 5-year period). According to the estimates of specialists, the increase of the output of lysine by 1990 to 50,000 tons a year would make it possible to balance 50 million tons of concentrated fodders and to release 5 million tons of grain /14/; thus, the production of 1 ton of lysine will save 100 tons of feed grain, which we still have to import in part.

The saving of production resources should be achieved during the 11th Five-Year Plan and subsequent years first of all by means of the /retooling of the production apparatus of the country/ /in italics/ and the improvement of technology in the sectors of the national economy. This presumes an increase of the proportion of the technical renovation and modernization of operating enterprises in the total amount of capital investments.

It is necessary to note that back at the 25th congress it was indicated that the improvement of technological processes should be aimed first of all at the maximum saving of source raw materials, fuel and materials /5, p 12/. During the 11th Five-Year Plan it is planned to continue this policy.

The improvement of technological processes is the core, the heart of all the development of productive forces. "Economic ages," K. Marx wrote, "differ not by what is produced, but by how it is produced, by what means of labor" /1/. Being based on the knowledge of the objective laws of the development of nature and man,[2] the technology of social production is the main form of the materialization of the achieved level of development of science and at the same time reflects the goals of development and the prevailing social conditions. For precisely this reason the improvement of the technology of production was and remains one of the decisive directions of the uniform technical policy of the Soviet state.

The process of increasing within the optimum limits the unit capacities of machines and equipment with the simultaneous decrease of their dimensions, metal content and power consumption and the reduction of the cost per unit of ultimate useful effect will continue during the 11th Five-Year Plan. This process first of all concerns the extractive sectors of industry, transportation, the chemical and petrochemical industries, metallurgy and electric power engineering.

A considerable saving of metal, power and labor inputs will be obtained by increasing the reliability and durability of machines and equipment and by lengthening their life. For example, powder coatings can protect structural components from corrosion for 20-25 years and increase the life of machines by two- to fivefold /11, p 7/. Under present conditions the increase of the life of machines is becoming one of the main factors of the saving of ferrous and nonferrous metals and the decrease of labor inputs in the sphere of capital repair.

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[2] "Technology reveals the active attitude of man toward nature, the immediate process of production of his life..." /1, p 382/.

The increase of the technical level and degree of economy of machines and equipment depends to a decisive extent on the technology of machine building. This technology is determined first of all by the achieved level of specialization in machine building, since only under the conditions of the specialized production of parts and assemblies of machines and equipment can their high technical level, quality, reliability and low production cost be ensured. Therefore during the 11th Five-Year Plan it is envisaged to continue the further extension and expansion of the specialization of machine building, the building of new and the development of operating specialized enterprises and large shops, which produce billets, parts, assemblies and units for sectorial and intersectorial purposes.

The improvement of the technology of production for the purpose of its intensification is also the development and introduction of new processes, which are oriented toward the use of less scarce resources, toward the shortening of the stages of the processing of the source raw materials and the creation of a wasteless technology. In particular, the need to develop a wasteless technology is especially ripe in the mining and concentration industry and in metallurgy. Annually more than 2 billion m^3 of various tailings of concentrate, 100 million tons of metallurgical slag and nearly the same amount of coal ash end up in dumps [12]. These "dumps" and "tailings" contain irreplaceable nonferrous and rare metals, diverse chemical and construction materials can be produced from them. The extensive involvement in production of metal-containing waste products, the use of technological processes with few operations, little and no waste are envisaged in the assignments for the 11th Five-Year Plan; it is planned to renovate operating enterprises on the basis of the adoption of such processes. It is clear, however, that this is only the start of the basic reorganization of the technology of production for the purpose of saving all types of production resources, and first of all the most limited and nonreproducible resources of natural origin.

The retooling of the production apparatus of the country for the purpose of changing over to the path of intensive development is making the corresponding demands on all the links of the production process--from the extraction and processing of primary raw materials and fuel to the obtaining of the finished products, that is, it covers not only the fuel and raw material sectors, but also the processing sectors of the national economy, the sectors of the production infrastructure. This means the reorganization of the technology of shaping (in particular, metalworking), installation and finishing operations, the transportation and storage of products. One of the main problems of the intensification of production--the increase of the yield of the final product per unit of basic fuel and raw material resources--can be successfully solved only in the unity of all the links of social technology.

For example, in the area of the improvement of the technology of shaping during the 11th Five-Year Plan it is planned to make even further progress in the direction of the replacement of technological processes, which are based on the cutting of metal, by more economic methods of shaping parts. The technology of transporting fuel and power is being improved (multilayer pipes for carrying gas are being introduced, the Ekibastuz-Center 1,500-kV direct current electric power transmission line is being built and so on). It is planned to raise the technology of storing products, especially agricultural raw materials and foodstuffs, to a qualitatively new level. For example, the extensive use of aluminum granaries, which have the advantages of quick construction under field conditions (in 30-50 hours), would make it possible to cut in half the losses of grain during storage. The construction of special vegetable and fruit storehouses with air conditioners and a neutral atmosphere can reduce the losses of vegetables and fruits to a minimum /11, p 12/.

The planned reorganization of the national economy on the basis of the introduction of more improved and economical technology in all the links of production implies the maintenance of proportionality among the individual stages of the production process and, hence, among the individual types of technological processes. The association and coordination of the individual technologies and of the scale of their use are necessary in order for technical progress to provide great socio-economic results and to promote the changeover of the national economy to the intensive path of development. In other words, the further development of the principles of the elaboration and the methods of the implementation of the uniform technical policy of the Soviet state is necessary.

The principles of the uniform technical policy were formulated by V. I. Lenin. They underwent development in the plan of the State Commission for the Electrification of Russia and in the long-range plans of the development of the Soviet economy. /A new form of the substantiation of the uniform technical policy--the Comprehensive Program of USSR Scientific and Technical Progress for 20 Years/ /in italics/, which in conformity with the decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 became an integral part of long-range planning, its first stage--took shape in the 1970's; the elaboration of the comprehensive program is making it possible to take more completely into account the potentials of the scientific and technical revolution.

Since the substantiation of the prospects of scientific and technical progress and, on this basis, the means of the intensification of the Soviet economy is connected with the elaboration of the Comprehensive Program of Scientific and Technical Progress, it would be appropriate in this article to dwell briefly on the experience of compiling this program and on several directions of its improvement.

It is possible to formulate the following main tasks of the Comprehensive Program of Scientific and Technical Progress, which are determined by its place in the system of long-range planning /9; 10/:

first, the forecasting of the main directions of scientific and technical progress and their influence on socio-economic processes;

second, the substantiation of the priority of individual directions of the development of science and technology, the scope of the introduction of the achievements of science and technology in the sectors of the national economy and the breakdown of production resources by the directions of scientific and technical progress;

third, the evaluation of the influence of the changes in the technology of production on its efficiency and pattern;

fourth, the substantiation of the directions of the improvement of the economic mechanism and the organizational structure of the national economy, which ensure the practical implementation of the scientific, technical and economic decisions proposed by the comprehensive program;

fifth, the elaboration of priority measures, which are included in the five-year plan and promote the implementation of the long-range scientific and technical policy.

The central methodological problem of the elaboration of the comprehensive program is the coordination of its scientific and technical and socio-economic aspects. It is obvious that the intensification of production and, on this basis, the increase of the well-being of the people and the successful solution of social problems are the main goal of the acceleration of scientific and technical progress. Therefore, the search for means to solve the main scientific and technical problems is made in the comprehensive program on the basis of the goals of socio-economic development, and at the same time the substantiation of the scale and the dates of the solution of social and economic problems presumes the evaluation of the possible results of the acceleration of scientific and technical progress. Therefore, when elaborating the comprehensive program two counter approaches are being used: on the one hand, the estimation of the socio-economic consequences of scientific and technical progress and, on the other, the identification of the problems which the development of the national economy is raising for science and technology. The first approach prevails when coordinating the scientific and technical and the socio-economic aspects of the comprehensive program for a medium-term period, while the importance of the second approach increases sharply with the turn to the long-term problems of scientific and technical progress.

The methods of compiling the Comprehensive Program of Scientific and Technical Progress reflect the multistage nature of this process and the presence in it of a number of structural elements.

Special scientific and technical forecasts are the basis for the comprehensive program. These forecasts cover individual technological processes and methods of producing specific types of products and services (for example, the conveyance of passengers by air transport, the smelting of steel, the transmission of electric power, the production of construction plastics and so on). Each technological process and the system of tools of labor, which corresponds to it, are characterized by a set of technical parameters (for example, the speed and carrying capacity of air transport, the speed and size of the memory of computers and so on). Technical progress is also expressed in the fact that an improvement of the corresponding parameters occurs. It can be of an evolutionary nature within the given technology, but can signify qualitative changes, a changeover to fundamentally new technical decisions. In the latter case a changeover to a new generation of machines, tools of labor is usually accomplished (for example, the changeover to furnaceless metallurgy on the basis of the direct reduction of metal).

The forecast of the technical parameters and of the possibilities of their evolutionary or spasmodic improvement is the main forecast in the special scientific and technical forecasts. It can be elaborated by various methods (statistical, expert, standard and others), and with the lengthening of the period of forecasting the role of expert methods increases.

The forecasts of the corresponding technical and economic indicators, which characterize the specific material and manpower expenditures per unit of output or useful impact, are elaborated on the basis of the forecast of the technical parameters. Since a different ratio between the technical parameters (for example, between the speed and carrying capacity of air transport) can be achieved in the same technological process, the need to substantiate their rational ratio arises. The methods of vector optimization can be used for this. The technical and economic indicators of a specific technological process thereby reflect certain economic requirements and limitations, among which the reduction of the cost per unit of useful impact is the main one.

The special scientific and technical forecasts are the basis of the elaboration of the comprehensive scientific and technical forecast, the main task of which is the determination of the possible sequence and the scale of the dissemination of innovations among the sectors of the national economy and the main directions of the retooling of the national economy. Whereas in the special scientific and technical forecasts it is a question of the improvement of individual technological processes, in the comprehensive scientific and technical forecast, which covers large sectors, national economic complexes and the economy of the country as a whole, the possible scale or the proportion of the individual technological processes, be they traditional or new, and their interaction should be specified.

The national economic results of the introduction of the achievements of science and technology can be specified in the comprehensive scientific and technical forecast. The socio-economic results of scientific and technical progress depend to a considerable extent on the scale of the use of the individual technological processes. Not only the absolute, but also the specific indicators of the economic impact depend on this scale.[3] Therefore, only the dependences of the individual indicators on the scale of the utilization of new technical decisions, that is, some hypothetical curves, can be determined on the basis of the special scientific and technical forecasts, while the estimation of the truly possible specific and absolute indicators of efficiency can be obtained only within the comprehensive scientific and technical forecast.

Although the comprehensive program is based on scientific and technical forecasts, it does not reduce to them. The measures ensuring the maximum possible and effective use of the achievements of science and technology in the national economy are substantiated in the comprehensive program. Three types of measures, which are included in the comprehensive program, should be mentioned here.

First, there are the recommendations on the main directions of the structural policy, that is, on the distribution and redistribution of manpower, material and financial resources among the main directions of scientific and technical progress with allowance made for its regional aspect. The principle of priority is realized in practice precisely in this distribution of resources.

Second, there are the recommendations on the dynamics and structure of the development of the scientific and educational potential of the country, that is, on the expenditures on the development of science and education and on the pattern of these expenditures. The priorities of the individual directions of scientific research,

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3. The indicator of the yield of the useful impact per unit of expenditures (manpower and material) is understood as the specific indicators of the cost effectiveness, while the amount of the saving of resources (manpower or material) in terms of the given scale of production (or the scale of the use of the given technology) is understood as the absolute indicators of the cost effectiveness.

which are of decisive importance for the formation of the long-term directions of scientific and technical progress, are established precisely here.

Third, there is the creation of the economic, organizational and other necessary conditions for the acceleration of scientific and technical progress in the chosen directions. In other words, a socio-economic climate, which is conducive to both the acceleration of scientific and technical progress as a whole and the practical implementation of the principle of priority, should be created.

The comprehensive program and the measures included in it are intended for a long-term period. The practical implementation of the long-range scientific and technical policy requires its consistent implementation from five-year plan to five-year plan. Such continuity can be achieved as a result of the coordination of the priority measures, which are intended for the next five-year plan, with the long-range tasks and priorities. The substantiation of the priority scientific and technical and socio-economic measures is the concluding part of the comprehensive program. These measures should take into account as completely as possible the forming real conditions of the development of the national economy and at the same time should be based on the long-range tasks.

The identification and precise definition of the key scientific and technical problems and the measures connected with their solution are creating the basis for the specification of a list and the preliminary content of the individual scientific and technical goal programs. As is indicated in the Main Directions, it is proposed to elaborate and implement some goal programs, including scientific and technical goal programs; these programs should be linked directly with the Comprehensive Program of Scientific and Technical Progress and should thereby ensure its coordination with the five-year plan of the economic and social development of the country.

It is obvious that the principles and methods of the elaboration of the Comprehensive Program of Scientific and Technical Progress and of scientific and technical goal programs should undergo further substantiation and development. The acceleration of scientific and technical progress and the all-round intensification of production on this basis are a task of enormous historical importance, and its practical accomplishment presumes the use of new, more improved methods of the substantiation of the uniform scientific and technical policy.

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